FORM NO: MS0701A

DB-AIRE

PRECISION ENVIRONMENTAL CONTROL UNIT

DB-TEMP SYSTEMS
DB-AIRE SYSTEMS

50/60 Hz

DB-AIRE

Precision Environmental Control Systems For Computer Rooms.

DB-AIRE SYSTEMS

State-of-the-art design with microprocessor based liquid crystal display panels, dual refrigeration circuits, tubular steel frames, large face area A-frame coils, the DB-Aire series offers a wide range of capacities and cooling mediums in compact, attractive, furniture grade cabinets. The units can be configured upflow or downflow.

The DBA (Air Cooled) system features efficiency in eight sizes. Available in 32-91 kW (9-26 tons) nominal capacities.

The DBW/ G (Water/ Glycol) system features units in eight sizes. Available in 32-91 kW (9-26 tons) nominal capacities.

The DBC (Chilled Water) system offers a large faced area coils in the industry's most compact cabinet available in 25-106 kW (7-30 tons) nominal capacities.

DB-TEMP SYSTEMS

The single refrigerant circuit DB-Temp has been designed to meet the demanding requirements of the most advanced computer room, yet is sized to provide complete economical protection for small applications.

Microprocessor based control with liquid crystal display monitoring plus a full complement of alarms are featured.

The small DB-Temp range is available in 7, 11, 14, 18 kW (2, 3, 4, and 5 ton) capacities, in air cooled, water/ glycol cooled, and chilled water models. Both upflow or downflow configurations are available.

The large DB-Temp range of 25, 32, 39, 46 kW (7, 9, 11, 13 ton) air cooled, water/glycol cooled precision environmental control systems is designed for data centers and telecommunications room applications. The units can be configured upflow or downflow.

This concept allows multiple units to be joined together or placed apart (any combination of capacities). Controls prevent conflicting operations.

GENERAL INFORMATION

DB-Aire units are precision environmental control systems that bring a new standard of flexibility and reliable performance to the computer room. Because room requirements differ, DB-Aire offers a wide range of sizes and styles.

DB-TEMP SYSTEMS

7, 11, 14 and 18 kW (2, 3, 4, and 5 ton) nominal capacities in air-cooled, water/glycol cooled, or chilled water models.

25, 32, 39 and 46 kW (7, 9, 11, and 13 ton) nominal capacities in air or water/glycol cooled models.

DB-Temp utilises a single compressor circuit.

DB-AIRE SYSTEMS

Dual compressor units in 32 through 91 kW (9 through 26 ton) nominal capacities available in air cooled or water/ glycol cooled models.

Chilled water models in 25 through 106 kW (7 through 30 ton) nominal capacities.

COMPUTER COMFORT

Computer rooms require air which is clean and properly distributed with precisely controlled temperatures and humidity. Building HVAC systems simply are not designed to meet these demands. But, DB-Aire units easily accomplish these goals with top-rated efficiency, 24 hours per day 7 days a week! DB-Aire units have been designed to meet the demanding requirements of the most advanced computer room.

Although building HVAC systems cool your staff, they fall short of your computer's comfort need. And they are unable to provide the close humidity control required in a modern data processing centre.

DESIGN FEATURES

Each unit is a complete environmental control system, factory wired, tested, and specifically designed to provide temperature, humidity, and dust control for computer room or tele-communications installations.

A specially designed compact tubular steel frame allows for a minimum space requirement in your computer room for both upflow and downflow units while still providing excellent serviceability. All parts are easily accessible.

The DB-Processor, a microprocessor based control displays temperature and humidity on liquid crystal display (LCD). A comprehensive diagnostic routine is standard.

HIGH PERFORMANCE LOW COST

DB-Aire's high-tech, furniture look is clue to its high performance but belies its more than competitive price. Every DB-Aire unit comes with a commitment to excellence as standard equipment.

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DB-AIRE MONITORING/ CONTROL

The heart of the Environmental Control System is the microprocessor based DB-Alarm Proccessor. The liquid crystal display not only monitors your data center's temperature, humidity, airflow, and cleanliness, but also provides component run times, alarm history and an automatic self-test of the microprocessor on system start-up. Multiple messages will be displayed by automatically scrolling from each message to the next. All of these messages are spelled out in English language on the liquid crystal display (LCD). The LCD has 20 characters on 4 rows, high density and backlit. Multiple alarms will be displayed sequentially in order of occurrence.

DB-AIRE STANDARD: PANEL MOUNTING LCD DISPLAY

The range of user interfaces has two further wall mounting versions with the same electrical features as the previous models. The 4x20 LCD display (with 5mm high characters) of the available models is back-lit as standard.

Power Supply: from the power board (ρCO) through the telephone cable (code S90CONN00*)
Std. Display: LCD 4 x20 (character height = 5mm)
Keypad: 5 external mechanical buttons.
10 mechanical buttons protected by polycarbonate.
Indicator Leds: 10

OPERATION

Push button control switches allow unit on/off operation; menu selection for programming, operational information, diagnostics, and historical data. A password feature prevents unauthorized access; separate manual override switches are provided for fan motor, cool 1, cool 2, heat 1, and humidification operations. With manual override your DB-Aire unit will never be down as a result of a control problem - just activate the appropriate switch and you have ability to override controls. Another feature is that all menu programmed information for basic system operation and alarm parameters is stored in a non-volatile EEPROM. All historical information is protected by battery back-up.

PROGRAMMABLE FUNCTIONS/ MONITORING

The user friendly MENU SELECTION switch permits step-by-step programming and display of the following functions:

- Temperature Set Point 18 to 29°C (65°F-85°F)
- Temperature Sensitivity 0.5 to 2.7°C (1°F-5 °F)
- Humidity Set Point (40% - 60% RH)
- Humidity Sensitivity (1% - 10% RH)
- Temperature Alarm Points
- Humidity Alarm Points
- Unit Start Time Delay

Normal functions are monitored and displayed on the LCD and include, in addition to the above set points, the following:

- Current Temperature (deg C or deg F)
- Current Humidity (%RH)
- Cooling Stages 1, 2 as applicable
- Heating Stages 1, 2, 3
- Humidification
- Dehumidification
- Current percent of capacity and the average percent of capacity for the last hour of operation for compressors, humidification, dehumidification, reheat, and chilled water.

PROGRAMMING KEY

The programming keys for the DB-Aire series controllers provide easy software updates during both end-of production testing and maintenance procedures.

DB-AIRE MONITORING/ CONTROL

ALARMS

Alarm conditions are also monitored on the LCD and are enunciated by an audible alarm. The alarm silence button will quiet the audible alarm but the display will continue to indicate the alarm condition until the problem is corrected.
The following alarms are standard:

- Compressor High/Low Pressure
- High and Low Temperature
- High And Low Humidity
- No Airflow
- Filters Blocked
- Humidifier Failure
- Manual Override
- Power Failure Restart
- Compressor Short Cycle
- Temperature Sensor Error
- Humidity Sensor Error
- Firestat Tripped
- Local Alarm (Programmable)
- Maintenance Due

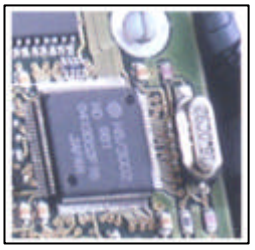
The local alarm may be programmed to display any one of the following (optional sensors required): under the floor water detection, no water flow, smoke alarm, fan motor over load, stand by pump on alarm etc. In addition, incomparable control settings will be identified on the LCD.

HISTORICAL DATA

In order to facilitate maintenance and service, component run times for fan motor, compressor operation reheat stages, humidification and dehumidification can be recalled and displayed on the LCD. The current temperature and humidity, with the minimum and maximum readings for the last 24 hours of operation, can be recalled and displayed. The last ten alarms and hours since occurrence can also be recalled and displayed. The historical data base is maintained by battery back-up should power fail.

DB-AIRE MEMORY BOX (Optional)

The high memory capacity (up to 4 Mbyte) and real time clock mean that the DB-Processor can act as a true black box recorder, saving all the alarm situations, the values of the sensors, and the status of the controlled devices. The black box data recorded can be transferred to the programming key or to a PC, including via modem.



DIAGNOSTICS

Automatic and manual diagnostic sequences simplify troubleshooting.

DB-AIRE PANEL MOUNTED GRAPHIC DISPLAY (Optional)

The terminal unit with back-lit graphic display for panel mounting is provided with a longer visual display and more intense back lighting in order to allow applications in different areas. This terminal unit can be connected to the local network that allows the terminal to display (and log through the respective optional card) the information coming from the other DB-Aire Units of the network. The graphic terminal can also be programmed by means of the DB-ARD system in exactly the same way as with the control applications for the DB-Aire. The user who is already accustomed to the environment will meet no difficulty in customizing the application on such a device. The following possibilities are available to the user: configurability of the character fonts both with regard to the style and size. It is thus possible to represent every alphabet (Chinese, Arabic, etc)

- Creation of graphic objects, both static and in motion, for a more immediate display of the information (alarms, energized devices, etc)
- Display of the graph of the acquired data so as to obtain, for instance, the temperature plot in a selectable interval of time
- Opportunity to manage a serial printer so as to print, for instance, the detected alarms
- Adjustable brightness.

DB-AIRE MONITORING/ CONTROL

DB PROCESSOR COMMUNICATION INTERFACES (Optional)

Below are the available communication interface features of the DB-Alarm processor:

BMS interface

The DB controllers can be connected to the BMS in the following ways:

- Directly, without using a gateway, thanks to the ability of the DB series controllers to select the protocol used,
- Using a gateway that converts the DB proprietary protocol used by the BMS,
- Integrating the driver for the management of the DB proprietary protocol into the BMS.

The following protocol are used by the DB controllers to ensure connectability to the other systems:

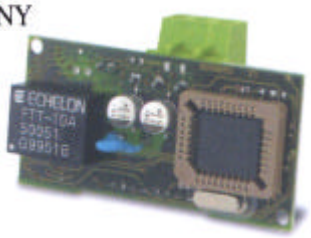
Modbus®

Introduced in the 1970s and now one of the most widely-used BMS protocols.
The DB series controllers can communicate directly in Modbus protocol®.

Like all DB controllers, it can also be connected to a Modbus® system using a gateway.

Type of supported protocol: Modbus® slave, RTU mode; RS485 and RS232 communication standard.

ECHELON
THE LONWORKS® COMPANY



With millions of devices installed world-wide, the LonWorks® system developed by Echelon®, is one of the dominant solutions on the market for the automation and control of industries, offices, homes and transport.

The DB series of controllers are LonWorks® compatible, using a special serial board.
Electrical supported standards: RS485 and FTT10.

BACnet

This is the protocol designated in 1995 by ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) as the organisation's official protocol.

DB provides a gateway through which all DB controllers can interface to BACnet™ systems.

Type of supported protocol: BACnet™, Point-To-Point and RS232 communication standard.

THIRD PARTY PROTOCOLS

DB controllers can provide numerous gateways for interfacing its controls to proprietary supervisory systems.

TREND

Trend is a building Automation System very widespread in the Anglo-Saxon countries and in general in Europe.

The DB-Aire controller is TREND compatible, through the proper serial card. TREND deals with the configuration and the supply of the interface card. Trend can be contacted directly on Tel. +44(0)1403211888.

SNMP

SNMP (Simple Network Management Protocol) is a protocol for the management of TCP/IP networks (the Internet protocol), established in 1988 based on the specifications of the IAB (Internet Administration Board), the body that supervises the internet protocol.

All DB controllers can be connected to a 10 Mbps Ethernet™ network via gateway or PlanVisor, and communicate with systems that use the SNMP Protocol.

DB-AIRE MONITORING/ CONTROL

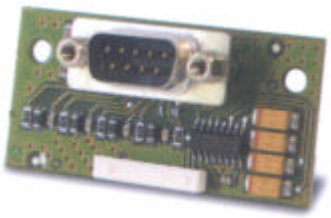
Metasys® is the building automation system developed by Johnson Controls.

Johnson itself handles the implementation of the software to control the interfaced devices into its system.

DB-Aire can provide developers and system integrators with DLLs (Dynamic link Libraries) for 16- and 32-bit Windows® applications.

Technically, a DLL is a compiled file that contains a series of functions for use by any other server process. In particular, the DB-Aire DLLs contain the software routines that allow the integration of communication with all DB-Aire instruments into the application, without needing to know the used protocol.

Direct modem



All the DB-Aire controllers can be connected directly to a traditional or GSM modem.

They can thus be controlled directly by remote stations, without requiring the use of a gateway or intermediate system.

TCP/IP Gateway

Thanks to this gateway with "WEB server" capability, all DB-Aire units can now be connected to a 10Mbps Ethernet™ local network.

The following functions are therefore possible:

- Display the parameters and the data from the controller using an Internet browser on any PC connected to the local network or Internet
- Send the data to a supervisor PC connected to the network that is able to handle the SNMP protocol.

SMS, short message service

Dunham-Bush has payed great attention to fitting the DB controllers with the ability to communicate important information directly by SMS message.

In fact, this is the best communication system for sending data wherever and promptly.

By simply connecting a GSM modem, the DB series controllers can not only send alarms and information, but also receive commands via SMS that service personnel can use to reset any alarm or perform the necessary operations, without having to travel to the installation.

NETWORK MONITORING (OPTIONAL)

NETWATCH

For smaller systems with the same management and control requirements as larger installations, NetWatch offers the complete and integrated solution for all monitoring and remote management needs. NetWatch, a versatile data recorder for the controllers connected in a supervisory network, is also:

- an excellent monitoring system. In the event of alarms, it can send faxes, SMS messages, call a remote security center, etc.,
- an exceptional instrument for remote control. Using a traditional or GSM modem, it can display and modify all of the parameters in the system. Optional 110V or 230V 50/60Hz.

NetVisor

This is the latest generation "WEB based" supervisory software. It allows refrigeration and air-conditioning systems to be monitored and controlled using a simple Internet browser: the pages displayed on the PC are in HTML format, the language of the worldwide web. NetVisor is designed to communicate externally with more than one protocol.

DB-TEMP DESIGN FEATURES

DB-TEMP MODELS
7-46 KW
2-13 TONS
AIR COOLED
WATER/GLYCOL COOLED

FRAME AND CABINET

The heliarc welded steel frame provides for maximum strength and ease of access. Side and front panels can be easily opened and removed with quarter-turn fasteners allowing full access to all unit components. All panels include 25mm (1 inch) thick, 1-1/2 lb density insulation for protection and sound attenuation. DB-Aire's unique frame design allows for your selection of either downflow or upflow air patterns in the same compact dimensions.

COIL SECTION

Designed for draw through application with large face areas for low velocity air to reduce turbulence and provide greater efficiency in the cooling and dehumidification process.

FAN SECTION

The centrifugal forward-curved, double-width, double-inlet blower configuration is engineered for quiet, reliable operation. The blowers are AMCA certified and factory certified dynamically balanced. The draw through design insures even air distribution across the coil, low internal cabinet pressure losses, and static sealing of the filter section. The fan motor is totally enclosed and is mounted on an adjustable slide base.

FILTERS

Computer room air cleanliness is enhanced by standard 50 mm (2 inch) deep pleated 30 percent efficient filters (based on ASHRAE 52-76) which can be easily changed by opening the front panel for the 2-5 tons models. The DB-Temp 7-13 tons models use standard 100 mm (4 inch) deep pleated 30 percent efficient filters (based on ASHRAE 52-76)

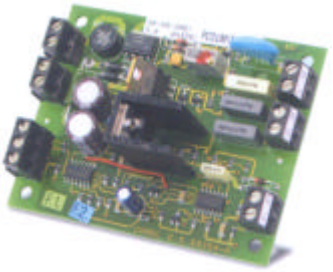
ELECTRICAL REHEAT

The three stage stainless steel finned tubular reheat coils provide ample capacity to maintain room dry bulb conditions during a system call for dehumidification. Three equal stages give a more accurate controlled response to the requirements of the computer room. The heating elements are protected by thermal safety switches. The three stages of reheat create a noticeable lowering of energy use.

HUMIDIFICATION (OPTIONAL)

The disposable cartridge electric stream generator humidifier provides humidification down stream of the cooling coil. The humidifier is designed to allow all units at any voltage to produce full rated steam output at an optimum low water level.

DB-AIRE UMID INTERFACE



The DB-Aire Umid interface allows the control of humidifiers directly from the DB-Aire microprocessor controller.

Steam Generator Humidifier

COMPRESSORIZED SYSTEM

The single stage refrigeration circuit includes a high efficiency and quiet scroll compressor. The scroll compressor has a high EER, low

DB-TEMP DESIGN FEATURES

sound power level and is highly reliable. The high efficiency is due to the controlled orbit with floating seals and advanced scroll geometry design. There is no contact of the mechanical parts in the scroll design which eliminates mechanical wear and tear. The motor is 100% cooled by suction gas. A check valve is located directly above the fixed scroll discharge port. This prevents the compressor from running backwards after the power has been switched off (i.e. no rattling and no shutdown noises). The motor is fitted with an internal thermal overload protection against maximum operating overload and loss of refrigerant charge. The refrigeration circuit includes filter drier, sight glass, adjustable expansion valve, low pressure override timer, manual reset high pressure control, short-cycle timer and rotalock service valves.

Air Cooled Systems- A wide range of sizes of remote mounted air-cooled condensers are available from DB-Aire in vertical discharge.

Condensers are manufactured by DB-Aire and include circuits sized to match the heat rejection of the corresponding compressor in the DB-Temp. The industrial duty design includes galvanized corrosion resistant housings, high efficiency aluminium finned (optional copper fins available) copper tube coils; coated fan guard; energy efficient thermally protected motors integral factory wired and tested control panel.

Water/Glycol Cooled System - Includes unit mounted condensers for providing the required capacity for heat rejection with minimum water/glycol flow and low total pressure drop.

Dry-Air Cooler For Glycol Systems - A wide range of sizes of remote mounted dry-air coolers are available from DB-Aire in vertical discharge and direct drive. Dry-air coolers are manufactured by DB-Aire and are sized to match the heat rejection of the corresponding DB-Temp unit. The industrial duty design includes galvanised corrosion resistant housing, high efficiency aluminium finned (optional copper fins available) copper tube coils; coated fan guards; energy efficient, thermally protected motors and fan cycling controls with integral factory wired and tested control panel.

DB-TEMP SYSTEMS

AIR COOLED/ GLYCOL COOLED PERFORMANCE DATA

PERFORMANCE AT 35°C (95°F) AMBIENT WITH SPECIFIED CONDENSER/DRY-AIR COOLER
NET CAPACITY KW AT STANDARD AIRFLOW

MODEL		DBTAD/U-02 DBTGD/U-02		DBTAD/U-03 DBTGD/U-03		DBTAD/U-04 DBTGD/U-04		DBTAD/U-05 DBTGD/U-05		DBTAD/U-07 DBTGD/U-07		DBTAD/U-09 DBTGD/U-09		DBTAD/U-11 DBTGD/U-11		DBTAD/U-13 DBTGD/U-13	
		TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.
26.7DB/ 19.4WB	50% RH	10.3	8.0	12.8	10.2	14.9	13.1	18.5	16.7	26.1	22.3	38.8	32.8	43.3	39.0	50.4	45.4
24DB/ 17WB	50% RH	9.6	7.9	11.9	10.0	13.8	12.9	17.2	16.4	24.3	21.8	36.1	32.1	40.2	38.2	46.8	44.5
24DB/ 16WB	45% RH	9.4	8.4	11.6	10.7	13.6	13.6	16.7	16.7	23.8	23.4	35.3	34.4	39.4	39.4	45.9	45.9
22.2DB/ 15.5WB	50% RH	9.1	7.7	10.4	9.8	13.2	12.6	16.4	16.0	23.1	21.4	34.3	31.5	38.2	37.5	44.5	43.6
22.2DB/ 14.8WB	45% RH	8.7	8.2	10.8	10.5	12.6	12.6	15.7	15.7	22.1	22.1	32.9	32.9	36.7	36.7	42.7	42.7

NET CAPACITY MBH AT STANDARD AIRFLOW

80DB/ 67WB	50% RH	35.2	27.4	43.6	34.7	50.8	44.8	63.1	56.9	89.0	76.0	132.4	111.8	147.6	133.1	171.8	154.9
75DB/ 62.5WB	50% RH	32.7	26.8	40.5	34.1	47.2	43.9	58.7	55.8	82.8	74.5	123.1	109.6	137.3	130.4	159.7	151.8
75DB/ 61WB	45% RH	32.1	28.7	39.7	36.4	46.3	46.3	57.6	57.6	81.1	79.7	120.6	117.2	134.5	134.5	156.5	156.5
72DB/ 60WB	50% RH	31.1	26.3	35.5	33.4	44.9	43.0	55.8	54.7	78.7	73.0	117.0	107.4	130.4	127.8	151.8	148.7
72DB/ 58.6WB	45% RH	29.8	28.1	37.0	35.7	43.1	43.1	53.6	53.6	75.5	75.5	112.3	112.3	125.2	125.2	145.7	145.7

DB-TEMP SYSTEMS

WATER COOLED PERFORMANCE DATA

PERFORMANCE AT 29.4°C (85°F) ENTERING WATER TEMPERATURE

NET CAPACITY KW AT STANDARD AIRFLOW

MODEL		DBTWD/U-02		DBTWD/U-03		DBTWD/U-04		DBTWD/U-05		DBTWD/U-07		DBTWD/U-09		DBTWD/U-11		DTWD/U-13	
		TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.
26.7DB/ 19.4WB	50% RH	11.2	8.5	13.9	10.8	17.2	14.8	19.7	17.0	27.7	22.6	41.4	33.8	46.7	41.3	54.4	47.0
24DB/ 17WB	50% RH	10.5	8.3	12.9	10.6	16.0	14.5	18.3	16.6	25.8	22.2	38.5	33.1	43.5	40.4	50.6	46.0
24DB/ 16WB	45% RH	10.2	8.9	12.7	11.3	15.7	15.5	17.9	17.8	25.3	23.7	37.8	35.4	42.6	42.6	49.5	49.2
22.2DB/ 15.5WB	50% RH	9.9	8.2	12.3	10.4	15.1	14.2	17.4	16.3	24.5	21.7	36.6	32.4	41.3	39.6	48.0	45.1
22.2DB/ 14.8WB	45% RH	9.5	8.8	11.8	11.1	14.6	14.7	16.7	16.7	23.5	23.2	35.1	34.7	39.7	39.7	46.1	46.1

NET CAPACITY MBH AT STANDARD AIRFLOW

80DB/ 67WB	50% RH	38.3	29.1	47.4	36.9	58.6	50.6	67.1	57.9	94.6	77.2	141.3	115.3	159.5	140.8	185.5	160.2
75DB/ 62.5WB	50% RH	35.7	28.5	44.0	36.1	54.5	49.6	62.4	56.8	88.0	75.7	131.4	113.0	145.4	138.0	172.5	157.0
75DB/ 61WB	45% RH	34.9	30.5	43.2	38.6	53.4	53.0	61.1	60.8	86.2	81.0	128.8	120.9	145.4	145.4	169.0	168.0
72DB/ 60WB	50% RH	33.9	28.0	41.8	35.4	51.7	48.6	59.3	55.6	83.6	74.1	124.8	110.7	141.0	135.2	163.9	153.8
72DB/ 58.6WB	45% RH	32.5	29.9	40.2	37.9	49.7	49.7	56.9	56.9	80.2	79.3	119.8	118.5	135.3	135.3	157.3	157.3

AIR COOLED, WATER/ GLYCOL COOLED

PHYSICAL DATA

MODEL		DBT*D/U-02	DBT*D/U-03	DBT*D/U-04	DBT*D/U-05	DBT*D/U-07	DBT*D/U-09	DBT*D/U-11	DBT*D/U-13
LENGTH	MM INS	895 35.2	895 35.2	895 35.2	895 35.2	1727 68	1727 68	1727 68	1727 68
WIDTH	MM INS	867 34.2	867 34.2	867 34.2	867 34.2	902 35.5	902 35.5	902 35.5	902 35.5
HEIGHT	MM INS	1880 74	1880 74	1880 74	1880 74	1956 77	1956 77	1956 77	1956 77
WEIGHT	KG LB	280 616	290 638	310 682	320 704	530 1166	540 1188	560 1232	580 1276

ADD 457MM(18 INCH) TO HEIGHT OF UNITS FOR DISCHARGE PLENUM - UP FLOW UNITS ONLY.

BLOWER DATA

STANDARD AIR VOLUME	CMH CFM	1700 1000	2550 1500	3400 2000	4250 2500	6796 4000	8500 5000	10200 6000	11050 6500
STANDARD FAN MOTOR	KW HP	0.75 1	0.75 1	0.75 1	1.12 1.5	1.5 2	2.2 3	3.0 4	3.7 5
OPTIONAL AIR VOLUME	CMH CFM	2550 1500	3060 1800	4250 2500	4590 2700	8500 5000	10200 6000	11050 6500	N/A N/A
OPTIONAL FAN MOTOR	KW HP	1.12 1.5	1.12 1.5	1.12 1.5	1.5 2	2.2 3	3.0 4	3.7 5	N/A N/A
EXT. STATIC PRESSURE	MM W.G. INS W.G.	7.6 0.3	7.6 0.3	7.6 0.3	7.6 0.3	12.7 0.5	12.7 0.5	12.7 0.5	N/A N/A
SIZE (QUANTITY)	MM INS	254 x 254 (1) 10 x 10 (1)	254 x 254 (1) 10 x 10 (1)	254 x 254 (1) 10 x 10 (1)	254 x 254 (1) 10 x 10 (1)	381 x 381 (1) 15 x15 (1)	381 x 381 (1) 15 x15 (1)	381 x 381 (1) 15 x15 (1)	381 x 381 (1) 15 x15 (1)

ADD 457MM (18 INCHES) TO HEIGHT OF UNITS FOR DISCHARGE PLENUM - UP FLOW UNITS ONLY

COMPRESSOR DATA

QUANTITY OF COMPRESSORS		1	1	1	1	1	1	1	1
REFRIGERANT		R 22	R 22	R 22	R 22	R 22	R 22	R 22	R 22
HORSEPOWER	50HZ 60HZ	4.0 3.5	5.1 4.9	6.0 5.8	7.0 6.0	8.0 7.0	12.0 11.0	13.0 10.0	15.0 13.0

EVAPORATOR DATA @ STANDARD AIRFLOW

FACE AREA	M^2 FT^2	0.28 3	0.28 3	0.46 5	0.46 5	1.16 12.5	1.16 12.5	1.16 12.5	1.16 12.5
ROWS OF COIL		4	4	4	4	2	3	4	4
FACE VELOCITY	M/S **FPM**	1.69 333	2.54 500	2.03 400	2.54 500	1.63 320	2.04 400	2.44 480	2.65 520

DB-TEMP SYSTEMS

REHEAT SECTION

MODEL		DBT*D/U-02	DBT*D/U-03	DBT*D/U-04	DBT*D/U-05	DBT*D/U-07	DBT*D/U-09	DBT*D/U-11	DBT*D/U-13
STANDARD ELECTRIC	KW	6.0	12.0	12.0	12.0	15.0	15.0	15.0	15.0
	MBH	20.5	41.0	41.0	41.0	51.2	51.2	51.2	51.2

HUMIDIFIER SECTION (OPTIONAL)

STANDARD STEAM	KG/HR	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
GENERATOR CAPACITY	LB/HR	10	10	10	10	10	10	10	10
	KW	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6

FILTERS STANDARD 50MM (2 INCH) THICK 30% ASHRAE STANDARD 52-76

610MM x 610MM (24 x 24) QTY	1	1	1	1	-	-	-	-

FILTERS STANDARD 100MM (4 INCH) THICK 30% ASHRAE STANDARD 52-76 (UPFLOW)

406MM x 635MM (16" x 25") QTY	-	-	-	-	3	3	3	3

FILTERS STANDARD 100MM (4 INCH) THICK 30% ASHRAE STANDARD 52-76 (DOWNFLOW)

406MM x 635MM (16" x 25") QTY	-	-	-	-	4	4	4	4

CONNECTION SIZE

LIQUID LINE O.D COPPER (1/UNIT)	INS	1/2	1/2	1/2	1/2	1/2	5/8	5/8	5/8
HOT GAS LINE O.D COPPER (1/UNIT)	INS	1/2	1/2	1/2	1/2	3/4	7/8	7/8	7/8
CONDENSER WATER - IN OUT	INS	7/8	7/8	1 1/8	1 1/8	1 5/8	1 5/8	1 5/8	1 5/8
HUMIDIFIER SUPPLY	INS	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
CONDENSATE DRAIN	INS	7/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8

NOTE : REFER TO OPERATION AND MAINTENANCE FOR RECOMMENDED PIPE SIZING BETWEEN INDOOR AND OUTDOOR UNIT.

AIR COOLED

AIR COOLED CONDENSERS STD SELECTIONS AT 35°C (95°F) AMBIENT, SEA LEVEL*

MODEL	DBTAD/U-02	DBTAD/U-03	DBTAD/U-04	DBTAD/U-05	DBTAD/U-07	DBTAD/U-09	DBTAD/U-11	DBTAD/U-13
MODEL NUMBER	DBRC-04	DBRC-04	DBRC-06	DBRC-06	DBRC-08	DBRC-10	DBRC-13	DBRC-17

*SEE 'REMOTE HEAT EXCHANGER' SECTION FOR MORE INFORMATION.

WATER COOLED

CONDENSER WATER REQUIREMENTS
MAXIMUM DESIGN WATER PRESSURE 1033 KPA

MODEL		DBTWD/U-02	DBTWD/U-03	DBTWD/U-04	DBTWD/U-05	DBTWD/U-07	DBTWD/U-09	DBTWD/U-11	DBTWD/U-13
29.4°C/85°F EWT	LPS/PD IN KPA	0.39/19.3	0.7/51.7	0.8/20.7	1.1/35.9	1.0/ 27.6	1.5/ 24.8	1.9/ 29.0	2.5/ 31.0
	GPM/PD IN PSI	6.2/2.8	11.4/7.5	12.0/3.0	17.0/5.2	15.8/ 4.0	24.0/ 3.6	30.0/ 4.2	40.0/ 4.5
23.9°C/75°F EWT	LPS/PD IN KPA	0.3/11.0	0.4/19.3	0.5/13.8	0.7/17.9	0.7/ 20.7	1.1/ 17.9	1.4/ 20.7	2.0/ 21.4
	GPM/PD IN PSI	4.0/1.6	6.2/2.8	8.3/2.0	10.4/2.6	11.1/ 3.0	17.3/ 2.6	22.0/ 3.0	31.3/ 3.1
18.3°C/65°F EWT	LPS/PD IN KPA	0.2/6.2	0.2/10.3	0.3/7.6	0.4/9.0	0.4/ 13.8	0.6/ 6.9	0.8/ 10.3	1.2/ 13.8
	GPM/PD IN PSI	2.6/0.9	3.9/1.5	5.2/1.1	6.5/1.3	7.1/ 2.0	10.0/ 1.0	13.2/ 1.5	19.0/ 2.0

GLYCOL COOLED

DRY-AIR COOLER SELECTION AT 35°C (95°F) AMBIENT, SEA LEVEL

MODEL		DBTGD/U-02	DBTGD/U-03	DBTGD/U-04	DBTGD/U-05	DBTGD/U-07	DBTGD/U-09	DBTGD/U-11	DBTGD/U-13
GLYCOL	LPS	0.4	0.7	0.7	0.9	1.3	1.7	1.9	2.2
FLOW RATE	GPM	6.4	11.0	11.7	15.0	21.0	27.0	30.0	35.0
PRESSURE DROP	KPA	21.4	49.0	23.4	31.0	24.1	20.0	25.5	21.4
	PSI	3.1	7.1	3.4	4.5	3.5	2.9	3.7	3.1
DRY-AIR COOLER		DBFC-05	DBFC-06	DBFC-09	DBFC-09	DBFC-11	DBFC-17	DBFC-21	DBFC-24

DB-TEMP SYSTEMS

AIR COOLED, WATER/ GLYCOL COOLED ELECTRICAL DATA

ELECTRICAL BASED ON STANDARD UNITS (WITH ELECTRIC REHEAT AND ELECTRIC HUMIDIFICATION)

MODEL		DBT*D/U-02	DBT*D/U-03	DBT*D/U-04	DBT*D/U-05	DBT*D/U-07	DBT*D/U-09	DBT*D/U-11	DBT*D/U-13
380/3/50	FLA	15.5	25.8	27.0	29.2	40.7	45.1	51.5	58.1
	MCA	19	32	33	36	50	55	63	71
	MFS	20.0	35.0	35.0	40.0	50.0	60.0	70.0	90.0
415/3/50	FLA	14.2	23.8	24.8	26.8	37.2	41.2	47.2	53.2
	MCA	17	29	31	33	46	50	57	65
	MFS	20.0	30.0	35.0	35.0	50.0	60.0	70.0	80.0
208/3/60	FLA	30.5	49.7	53.7	57.6	77.5	89.3	100.9	112.5
	MCA	37	61	66	71	95	109	123	137
	MFS	40.0	70.0	70.0	80.0	110.0	125.0	150.0	175.0
230/3/60	FLA	27.6	44.9	48.5	52.1	70.1	80.8	91.3	101.7
	MCA	34	55	60	64	86	99	111	124
	MFS	35.0	60.0	60.0	70.0	100.0	125.0	125.0	150.0
460/3/60	FLA	13.7	22.5	24.3	26.1	34.8	40.4	45.5	50.3
	MCA	17	28	30	32	43	50	55	61
	MFS	20.0	30.0	30.0	35.0	50.0	60.0	70.0	80.0

ELECTRICAL BASED ON ELECTRIC HUMIDIFICATION WITHOUT ELECTRIC REHEAT

380/3/50	FLA	11.9	13.1	14.3	16.5	23.4	27.8	34.2	40.9
	MCA	14	16	17	20	28	33	41	49
	MFS	17.5	20.0	20.0	25.0	40.0	45.0	60.0	70.0
415/3/50	FLA	10.9	12.1	13.1	15.1	21.4	25.3	31.3	37.3
	MCA	13	15	16	18	26	30	38	45
	MFS	15.0	17.5	20.0	20.0	35.0	45.0	50.0	60.0
208/3/60	FLA	23.8	26.4	30.3	34.3	45.8	57.7	69.3	80.9
	MCA	29	32	37	42	56	70	84	98
	MFS	35.0	40.0	50.0	50.0	80.0	100.0	125.0	150.0
230/3/60	FLA	21.5	23.8	27.4	31.0	41.4	52.1	62.6	73.1
	MCA	26	29	33	38	50.0	63.0	76.0	88.0
	MFS	30.0	35.0	45.0	50.0	70	90	110	125
460/3/60	FLA	10.7	11.9	13.7	15.5	20.5	26.1	31.1	36.0
	MCA	13	14	17	19	25	32	38	43
	MFS	15.0	17.5	20.0	25.0	35.0	45.0	50.0	60.0

ELECTRICAL BASED ON NO ELECTRIC REHEAT NO ELECTRIC HUMIDIFICATION

380/3/50	FLA	6.4	7.6	8.8	11.0	17.9	22.3	28.7	35.4
	MCA	8	9	11	13	21	27	34	42
	MFS	12.0	15.0	17.5	20.0	35.0	40.0	50.0	60.0
415/3/50	FLA	5.9	7.1	8.1	10.1	16.4	20.3	26.3	32.3
	MCA	7	8	10	12	20	24	31	38
	MFS	10.0	12.0	15.0	17.5	30.0	40.0	50.0	60.0
208/3/60	FLA	13.8	16.4	20.3	24.3	35.8	47.7	59.3	70.9
	MCA	16	20	25	29	43	57	71	85
	MFS	25.0	30.0	40.0	45.0	70.0	90.0	110.0	125.0
230/3/60	FLA	12.5	14.8	18.4	22.0	32.4	43.1	53.6	64.1
	MCA	15	18	22	26	39	52	64	77
	MFS	20.0	25.0	35.0	40.0	60.0	80.0	100.0	125.0
460/3/60	FLA	6.2	7.4	9.2	11.0	16.0	21.6	26.6	31.5
	MCA	7	9	11	13	19	26	32	38
	MFS	12.0	15.0	17.5	20.0	30.0	40.0	50.0	60.0

FAN MOTOR FULL LOAD AMPS @ STANDARD AIR FLOW

380/3/50	1.8	1.8	1.8	2.8	3.7	5.1	6.7	8.4
415/3/50	1.7	1.7	1.7	2.6	3.4	4.6	6.2	7.7
208/3/60	3.5	3.5	3.5	5.0	6.5	9.0	11.8	14.0
230/3/60	3.2	3.2	3.2	4.5	5.9	8.1	10.7	12.7
460/3/60	1.6	1.6	1.6	2.2	3.0	4.1	5.4	6.4

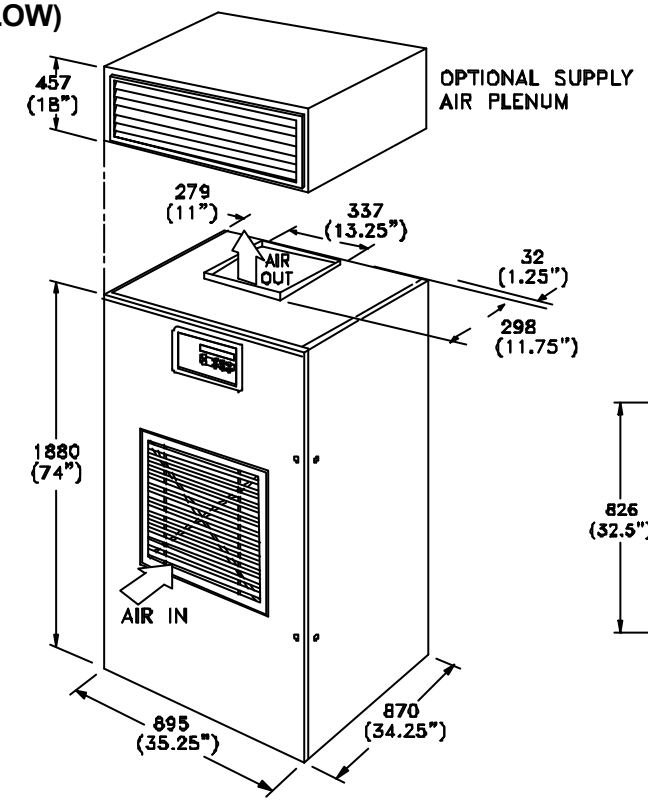
COMPRESSOR NOMINAL RUNNING AMPS

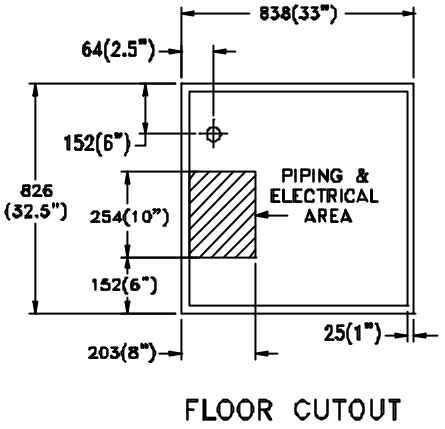
380/3/50	4.6	5.8	7.0	8.2	14.2	17.2	22.0	27.0
415/3/50	4.2	5.4	6.4	7.5	13.0	15.7	20.1	24.6
208/3/60	10.3	12.8	16.8	19.4	29.3	38.7	47.4	56.8
230/3/60	9.3	11.6	15.2	17.5	26.5	35.0	42.9	51.4
460/3/60	4.6	5.8	7.6	8.8	13.0	17.5	21.2	25.1

*A= AIR COOLED W= WATER COOLED G= GLYCOL COOLED
FLA = FULL LOAD AMPACITY MCA = MINIMUM CIRCUIT AMPACITY MFS = MAXIMUM FUSE SIZE

AIR COOLED, WATER/ GLYCOL COOLED/ CHILLED WATER DIMENSIONAL DATA

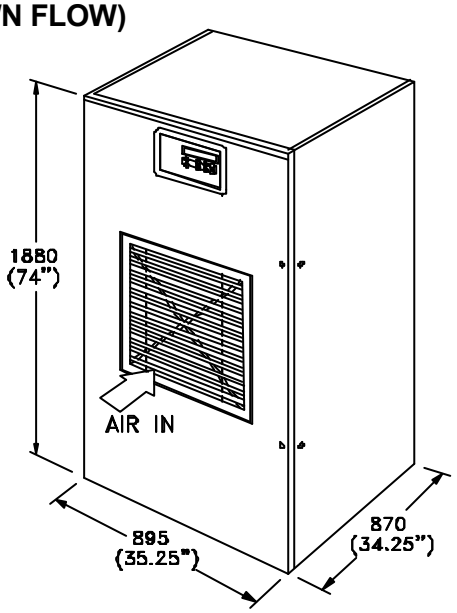
MODEL 2, 3, 4, 5 TON
(UP FLOW)

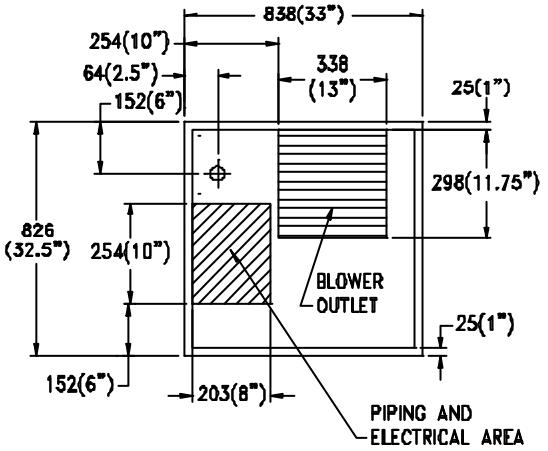




FLOOR CUTOUT

MODEL 2, 3, 4, 5 TON
(DOWN FLOW)





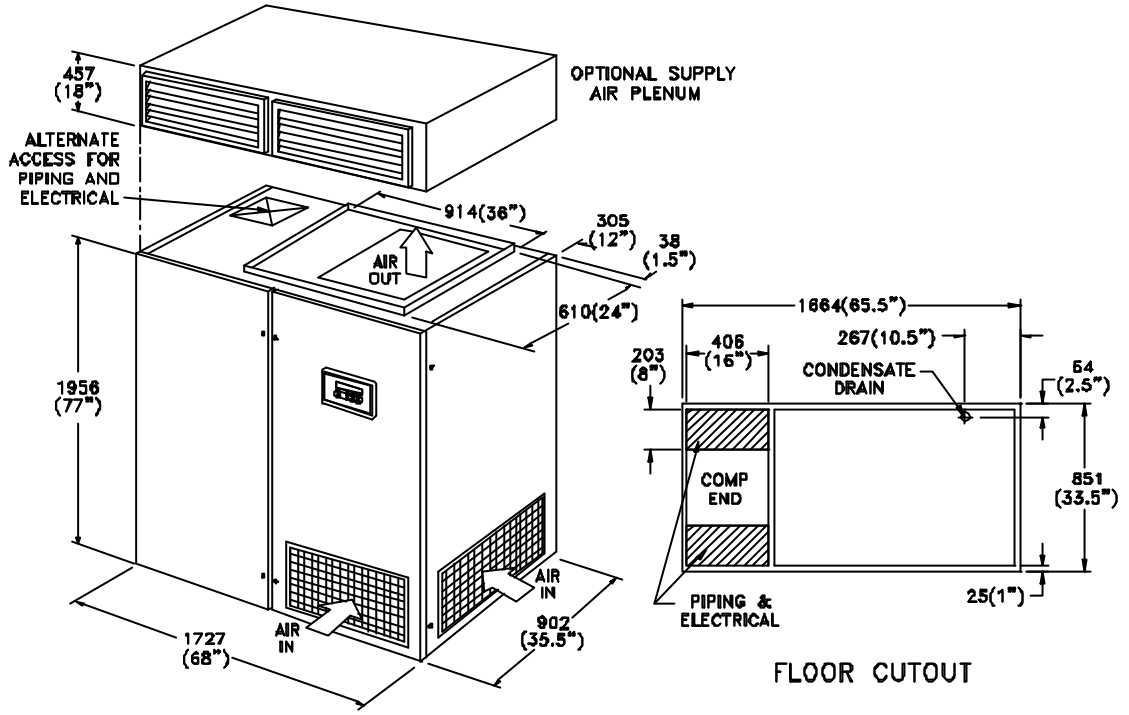
FLOOR CUTOUT

NOTES : 1.) MINIMUM SPACE REQUIRED IS 914MM (36") ON FRONT ,RIGHT AND LEFT SIDES FOR SERVICE ACCESS.
2.) ALL DIMENSIONS ARE IN MILLIMETER (INCHES).

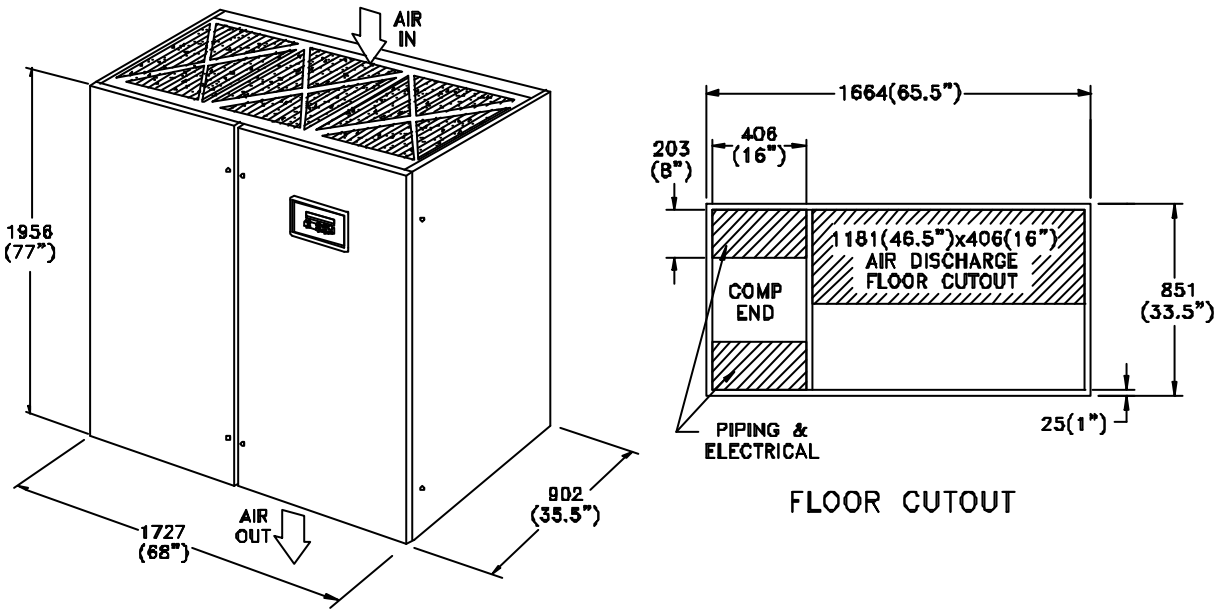
DB-TEMP SYSTEMS

AIR COOLED, WATER/ GLYCOL COOLED DIMENSIONAL DATA

MODEL 07, 09, 11, 13 TON
(UP FLOW)



MODEL 07, 09, 11, 13 TON
(DOWN FLOW)



NOTES : 1.) MINIMUM SPACE REQUIRED IS 914MM (36") ON FRONT, RIGHT AND LEFT SIDES FOR SERVICE ACCESS.
2.) ALL DIMENSIONS ARE IN MILLIMETER (INCHES).

DB-AIRE DESIGN FEATURES

DB-AIRE MODELS
9 - 26 TONS
32 - 91 KW
AIR COOLED
WATER/GLYCOL COOLED

FRAME AND CABINET

The heliarc welded tubular steel frame provides for maximum strength and ease of access. Side and front panels can be easily opened and removed with quarter-turn fasteners allowing full access to all unit components. All panels include 25 mm (1 inch) thick 1-1/2lb density insulation for protection and sound attenuation. DB-Aire's unique frame design allows for your selection of either downflow or upflow air patterns in the same compact dimensions.

A-FRAME COIL

Computer selected coil design, using interwoven coil surface increases unit efficiency at low loads. Air is drawn through both circuits of the coil at low velocity providing effective surface exposure with minimum turbulence. This provides greater efficiency in the cooling and dehumidification process.

FAN SECTION

The 381 mm (15 inch) diameter, centrifugal, forward-curved, double-width, double-inlet blower configuration is engineered for quiet, reliable operation. The blowers are AMCA certified and factory certified dynamically balanced. The draw through design ensures even air distribution across the A-frame coil. The draw through design also ensures low internal cabinet pressure losses, and static sealing of the filter section. Fan motors are totally enclosed and mounted on an adjustable slide base.

FILTERS

Computer room air cleanliness is enhanced by standard 100 mm (4 inch) deep pleated 30 percent efficient filters (based on ASHRAE 52-76) which can be easily changed through either side of the unit. Upflow units are changed from right hand side.

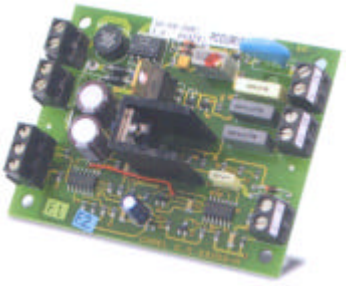
ELECTRICAL REHEAT

The three stage stainless steel finned tubular reheat coils provide ample capacity to maintain room dry bulb conditions during a system call for dehumidification. Three equal stages give a more accurate controlled response to the requirements of the computer room. The heating elements are protected by thermal safety switches. The three stages of reheat create a noticeable lowering of energy use.

HUMIDIFICATION (OPTIONAL)

The disposable cartridge electric stream generator humidifier provides humidification down stream of the cooling coil. The humidifier is designed to allow all units at any voltage to produce full rated steam output at an optimum low water level.

DB-AIRE UMID INTERFACE



The DB-Aire Umid interface allows the control of humidifiers directly from the DB-Aire microprocessor controller.

Steam Generator Humidifier

DB-AIRE DESIGN FEATURES

COMPRESSORIZED SYSTEMS

The refrigeration system uses two(2) highly efficient and quiet scroll compressors. The scroll compressor has a high EER, low sound power level and is highly reliable. The high efficiency is due to the controlled orbit with floating seals and advanced scroll geometry design. There is no contact of the mechanical parts in the scroll design which eliminates mechanical wear and tear. The motor is 100% cooled by suction gas. A check value is located directly above the fixed scroll discharge port. This prevents the compressor from running backwards after the power has been switched off (i.e. no rattling and no shut-down noise). The motor is fitted with a thermostat which protects the compressor if a malfunction occurs. The refrigeration circuit includes built in compressor overload protection, filter drier, sight glass, adjustable expansion valve, low pressure override timer, manual reset high pressure control, short-cycle timer and rotalock service valves.

Air Cooled Systems - A wide range of sizes of remote mounted air cooled condensers are available from DB-Aire in vertical discharge.

Condensers are manufactured by DB-Aire and include circuits sized to match the heat rejection of the corresponding compressors. The industrial duty design includes galvanised corrosion resistant housings, high efficiency aluminium finned (optional copper fins available), copper tube coils; coated fan guards, energy efficient thermally protected motors; and integral factory wired and tested control panel.

Water/Glycol Cooled Systems - Include unit mounted condensers for providing the required capacity for heat rejection with minimum water/glycol flow and low total pressure drop.

Dry-Air Cooler For Glycol Systems - A wide range of sizes of remote mounted fluid coolers are available from DB-Aire in vertical discharge. Dry-air coolers are manufactured by DB-Aire and are sized to match the heat rejection of the corresponding unit. The industrial duty design includes galvanised corrosion resistant housings, high efficiency aluminium finned (optional copper fins available), copper tube coils; coated fan guards; energy efficient, thermally protected motors and fan cycling controls with integral factory wired and tested control panel.

DB-AIRE SYSTEMS

AIR COOLED/ GLYCOL COOLED PERFORMANCE DATA

PERFORMANCE AT 35°C (95°F) AMBIENT WITH SPECIFIED CONDENSER/ DRY-AIR COOLER

NET CAPACITY KW AT STANDARD AIRFLOW

MODEL		DBAD/U-09 DBGD/U-09		DBAD/U-11 DBGD/U-11		DBAD/U-13 DBGD/U-13		DBAD/U-14 DBGD/U-14		DBAD/U-16 DBGD/U-16		DBAD/U-19 DGAD/U-19		DBAD/U-22 DBGD/U-22		DBAD/U-26 DBGD/U-26	
		TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.
26.7DB/19.4WB	50% RH	36.6	32.3	45.5	38.8	51.6	45.1	57.9	51.1	67.9	58.7	77.5	66.2	88.1	76.1	102.5	88.5
24.0DB/17.0WB	50% RH	34.1	31.7	42.3	38.1	48.0	44.2	53.8	50.1	63.2	57.5	72.1	64.9	81.9	74.5	95.3	86.8
24.0DB/16.0WB	45% RH	33.4	33.4	41.4	40.7	47.1	47.3	52.8	52.8	61.9	61.5	70.7	69.4	80.3	79.8	93.4	92.8
22.2DB/15.5WB	50% RH	32.4	31.1	40.2	37.3	45.6	43.3	51.1	49.1	60.0	56.4	68.5	63.6	77.8	73.1	90.6	85.0
22.2DB/14.8WB	45% RH	31.1	31.1	38.6	38.6	43.8	43.8	49.1	49.1	57.6	57.6	65.7	65.7	74.7	74.7	86.9	86.9

NET CAPACITY MBH AT STANDARD AIRFLOW

80DB/67.0WB	50% RH	125.0	110.3	155.1	132.5	176.2	153.9	197.5	174.3	231.8	200.2	264.5	225.9	300.5	259.5	349.7	302.0
75DB/62.5WB	50%RH	116.2	108.1	144.3	129.9	163.9	150.8	183.7	170.8	215.6	196.2	246.0	221.4	279.5	254.3	325.2	296.0
75DB/61.0WB	45%RH	113.9	113.9	141.4	138.9	160.6	161.3	180.0	180.0	211.3	209.9	241.1	236.9	273.9	272.1	318.8	316.7
72DB/60.0WB	50%RH	110.4	106.0	137.1	127.3	155.7	147.8	174.5	167.4	204.8	192.3	233.7	217.0	265.5	249.3	309.0	290.1
72DB/58.6WB	45%RH	106.0	106.0	131.6	131.6	149.5	149.5	167.5	167.5	196.6	196.6	224.3	224.3	254.9	254.9	296.6	296.6

DB-AIRE SYSTEMS

WATER COOLED PERFORMANCE DATA

PERFORMANCE AT 29.4°C (85°F) ENTERING WATER TEMPERATURE

NET CAPACITY KW AT STANDARD AIRFLOW

MODEL		DBWD/U-09		DBWD/U-11		DBWD/U-13		DBWD/U-14		DBWD/U-16		DBWD/U-19		DBWD/U-22		DBWD/U-26	
		TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.	TOTAL	SENS.
26.7DB/19.4WB	50% RH	38.6	33.0	48.0	41.0	54.4	46.0	61.0	52.1	71.4	59.6	82.0	67.7	92.6	77.4	107.7	90.0
24.0DB/17.0WB	50% RH	35.9	32.3	44.6	40.2	50.6	45.0	56.7	51.0	66.4	58.4	76.3	66.4	86.2	75.8	100.2	88.1
24.0DB/16.0WB	45% RH	35.2	34.6	43.8	43.0	49.6	48.2	55.6	54.6	65.1	62.5	74.8	71.0	84.4	81.1	98.2	94.3
22.2DB/15.5WB	50% RH	34.1	31.7	42.4	39.4	48.1	44.1	53.9	50.0	63.1	57.3	72.5	65.1	81.9	74.3	95.2	86.2
22.2DB/14.8WB	45% RH	32.7	30.7	40.7	38.2	46.2	42.8	51.7	48.5	60.6	55.6	69.6	63.1	78.6	72.1	91.4	83.8

NET CAPACITY MBH AT STANDARD AIRFLOW

80DB/67.0WB	50% RH	131.7	112.5	163.8	139.9	185.7	156.8	208.0	177.7	243.7	203.5	279.9	231.1	316.1	264.0	367.5	306.9
75DB/62.5WB	50%RH	122.5	110.2	152.3	137.1	172.7	153.7	193.5	174.1	226.6	199.4	260.3	226.5	294.0	258.7	341.7	300.7
75DB/61.0WB	45%RH	120.0	117.9	149.3	146.7	169.2	164.4	189.6	186.3	222.1	213.4	255.1	242.3	288.1	276.8	334.9	321.8
72DB/60.0WB	50%RH	116.3	108.0	144.7	134.4	164.0	150.6	183.8	170.6	215.3	195.4	247.3	222.0	279.3	253.5	324.7	294.7
72DB/58.6WB	45%RH	111.7	104.8	138.9	130.3	157.5	146.1	176.5	165.5	206.7	189.6	237.4	215.3	268.1	245.9	311.7	285.9

AIR COOLED, WATER/ GLYCOL COOLED

PHYSICAL DATA

MODEL			DB*D/U-09	DB*D/U-11	DB*D/U-13	DB*D/U-14	DB*D/U-16	DB*D/U-19	DB*D/U-22	DB*D/U-26
LENGTH		MM INS	1727 68	1727 68	1727 68	2654 104.5	2654 104.5	2654 104.5	2654 104.5	2654 104.5
WIDTH		MM INS	902 35.5	902 35.5	902 35.5	902 35.5	902 35.5	902 35.5	902 35.5	902 35.5
HEIGHT		MM INS	1956 77	1956 77	1956 77	1956 77	1956 77	1956 77	1956 77	1956 77
WEIGHT	**AIR COOLED**	KG LB	545 1200	630 1381	630 1381	845 1859	895 1969	950 2090	1030 2266	1100 2420
	WATER COOLED	KG LB	565 1243	655 1440	655 1440	900 1980	960 2112	1020 2244	1060 2332	1150 2530
	GLYCOL COOLED	KG LB	565 1243	655 1440	655 1440	900 1980	960 2112	1020 2244	1060 2332	1150 2530

ADD 457MM(18 INCH) TO HEIGHT OF UNITS FOR DISCHARGE PLENUM - UP FLOW UNITS ONLY.

BLOWER DATA

STANDARD AIR VOLUME	CMH CFM	8500 5000	10200 6000	11000 6500	13600 8000	15300 9000	17000 10000	18700 11000	22100 13000
STANDARD FAN MOTOR	KW HP	2.2 3.0	3.0 4.0	3.7 5.0	3.0 4.0	3.7 5.0	4.1 5.5	5.6 7.5	7.5 10
OPTIONAL AIR VOLUME	CMH CFM	10200 6000	11000 6500	N/A N/A	15300 9000	17000 10000	20400 12000	22100 13000	N/A N/A
OPTIONAL FAN MOTOR	KW HP	3.0 4.0	3.7 5.0	N/A N/A	3.7 5.0	5.6 7.5	5.6 7.5	7.5 10.0	N/A N/A
EXT. STATIC PRESSURE	MM W.G. INS W.G.	12.7 0.5	12.7 0.5	12.7 0.5	12.7 0.5	12.7 0.5	12.7 0.5	12.7 0.5	12.7 0.5
SIZE (QUANTITY)	MM INS	381x381 (1) 15x15 (1)	381x381 (1) 15x15 (1)	381x381 (1) 15x15 (1)	381x381 (2) 15x15 (2)	381x381 (2) 15x15 (2)	381x381 (2) 15x15 (2)	381x381 (2) 15x15 (2)	381x381 (2) 15x15 (2)

COMPRESSOR DATA

QUANTITY OF COMPRESSORS	2	2	2	2	2	2	2	2
REFRIGERANT	R 22	R 22	R 22	R 22	R 22	R 22	R 22	R 22
HORSEPOWER EACH 50HZ 60HZ	5.5 5.0	7.0 5.5	8.0 7.0	9.0 8.0	10.0 9.0	12.0 10.0	13.0 12.0	15.0 13.0

EVAPORATOR DATA @ STANDARD AIRFLOW

FACE AREA	M^2 FT^2	1.13 12.2	1.13 12.2	1.13 12.2	2.27 24.4	2.27 24.4	2.27 24.4	2.27 24.4	2.27 24.4
ROWS OF COIL	3	4	4	3	3	4	4	4
FACE VELOCITY	M/S FPM	2.09 409	2.50 491	2.71 5.32	1.67 327	1.88 368	2.09 409	2.29 450	2.71 532

DB-AIRE SYSTEMS

REHEAT SECTION

MODEL		DB*D/U-09	DB*D/U-11	DB*D/U-13	DB*D/U-14	DB*D/U-16	DB*D/U-19	DB*D/U-22	DB*D/U-26
STANDARD ELECTRIC	KW	15.0	15.0	15.0	22.5	22.5	22.5	22.5	22.5
	MBH	51.2	51.2	51.2	76.8	76.8	76.8	76.8	76.8

HUMIDIFIER SECTION (OPTIONAL)

STANDARD STEAM	KG/HR	4.6	4.6	4.6	4.6	13.6	13.6	13.6	13.6
GENERATOR CAPACITY	LB/HR	10.0	10.0	10.0	30.0	30.0	30.0	30.0	30.0
	KW	3.6	3.6	3.6	9.4	9.4	9.4	9.4	9.4

FILTERS STANDARD 100MM (4 INCH) THICK 30% ASHRAE STANDARD 52-76 (DOWNFLOW)

508MMx635MM (20"x 25")	QTY	-	-	-	5	5	5	5	5
406MMx635MM (16"x 25")	QTY	4	4	4	-	-	-	-	-

FILTERS STANDARD 100MM (4 INCH) THICK 30% ASHRAE STANDARD 52-76 (UPFLOW)

508MMx635MM (20"x 25")	QTY	-	-	-	4	4	4	4	4
406MMx635MM (16"x 25")	QTY	3	3	3	-	-	-	-	-

CONNECTION SIZE

LIQUID LINE O.D COPPER (2/UNIT)	INS	1/2	1/2	1/2	1/2	5/8	5/8	5/8	5/8
HOT GAS LINE O.D COPPER (2/UNIT)	INS	1/2	3/4	3/4	3/4	3/4	7/8	7/8	7/8
CONDENSER WATER - IN OUT	INS	1 5/8	1 5/8	1 5/8	1 5/8	2 1/8	2 1/8	2 1/8	2 1/8
HUMIDIFIER SUPPLY	INS	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
CONDENSATE DRAIN	INS	7/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8

NOTE : REFER TO OPERATION AND MAINTENANCE FOR RECOMMENDED PIPE SIZING BETWEEN INDOOR AND OUTDOOR UNIT.

AIR COOLED

AIR COOLED CONDENSERS STD SELECTIONS AT 35°C(95°F) AMBIENT, SEA LEVEL*

MODEL	DBAD/U-09	DBAD/U-11	DBAD/U-13	DBAD/U-14	DBAD/U-16	DBAD/U-19	DBAD/U-22	DBAD/U-26
MODEL NUMBER	DBRC-10	DBRC-13	DBRC-17	DBRC-17	DBRC-20	DBRC-20	DBRC-26	DBRC-30

*SEE 'REMOTE HEAT EXCHANGER' SECTION FOR MORE INFORMATION.

WATER COOLED

CONDENSER WATER REQUIREMENTS
MAXIMUM DESIGN WATER PRESSURE 1033 KPA

MODEL		DBWD/U-09	DBWD/U-11	DBWD/U-13	DBWD/U-14	DBWD/U-16	DBWD/U-19	DBWD/U-22	DBWD/U-26
29.4°C/85°F EWT	LPS/PD IN KPA	1.7 / 34.5	2.5 / 41.4	2.7 / 48.3	2.7 / 48.3	2.7 / 48.3	3.2 / 48.3	3.3 / 48.3	4.0 / 72.4
	GPM/PD IN PSI	26.2 / 5.0	40.0 / 6.0	42.0 / 7.0	42.0 / 7.0	43.0 / 7.0	50.7 / 7.0	52.5 / 7.0	62.6 / 10.5
23.9°C/75°F EWT	LPS/PD IN KPA	1.2 / 27.6	1.7 / 27.6	1.9 / 31.0	1.9 / 31.0	1.9 / 31.0	2.2 / 31.0	2.3 / 31.0	2.9 / 48.3
	GPM/PD IN PSI	18.6 / 4.0	27.3 / 4.0	29.7 / 4.5	29.7 / 4.5	30.7 / 4.5	35.5 / 4.5	37.1 / 4.5	46.4 / 7.0
18.3°C/65°F EWT	LPS/PD IN KPA	0.8 / 24.1	1.1 / 24.1	1.2 / 27.6	1.2 / 27.6	1.3 / 27.6	1.5 / 27.6	1.5 / 27.6	1.9 / 41.4
	GPM/PD IN PSI	11.9 / 3.5	17.0 / 3.5	19.0 / 4.0	19.0 / 4.0	20.0 / 4.0	23.0 / 4.0	23.8 / 4.0	29.7 / 6.0

GLYCOL COOLED

DRY-AIR COOLER SELECTION AT 35°C (95°F) AMBIENT, SEA LEVEL

MODEL		DBGD/U-09	DBGD/U-11	DBGD/U-13	DBGD/U-14	DBGD/U-16	DBGD/U-19	DBGD/U-22	DBGD/U-26
MODEL NUMBER FLUID COOLER		DBFC-17	DBFC-21	DBFC-24	DBFC-28	DBFC-30	DBFC-37	DBFC-40	DBFC-24(2)
GLYCOL FLOW RATE	LPS	1.7	1.9	2.2	2.5	3.5	3.9	4.4	5.0
	GPM	27	30	35	40	56	62	70	80
PRESSURE DROP	KPA	20.0	25.5	21.4	18.6	24.5	26.2	20.7	21.4
	PSI	2.9	3.7	3.1	2.8	3.5	3.8	3.0	3.1

DB-AIRE SYSTEMS

AIR COOLED, WATER/ GLYCOL COOLED ELECTRICAL DATA

ELECTRICAL BASED ON STANDARD UNITS (WITH ELECTRIC REHEAT AND ELECTRIC HUMIDIFICATION)

MODEL		DB*D/U-09	DB*D/U-11	DB*D/U-13	DB*D/U-14	DB*D/U-16	DB*D/U-19	DB*D/U-22	DB*D/U-26
380/3/50	FLA	44.3	53.7	59.6	72.8	78.9	77.3	90.1	103.8
	MCA	52	62	69	85	92	90	104	119
	MFS	60.0	70.0	70.0	90.0	100.0	90.0	110.0	125.0
415/3/50	FLA	40.5	49.1	54.5	66.5	72.2	70.7	82.5	95.0
	MCA	48	57	63	78	84	82	85	109
	MFS	50.0	60.0	70.0	80.0	90.0	90.0	100.0	125.0
208/3/60	FLA	89.3	106.3	114.3	143.1	153.4	158.0	177.9	205.1
	MCA	105	123	132	167	179	184	205	235
	MFS	110.0	125.0	150.0	175.0	200.0	200.0	225.0	250.0
230/3/60	FLA	80.8	96.1	103.4	129.4	138.7	142.9	160.9	185.5
	MCA	95	111	119	151	162	166	186	212
	MFS	100.0	125.0	125.0	175.0	175.0	175.0	200.0	250.0
460/3/60	FLA	40.5	47.1	51.2	63.3	68.7	70.1	80.0	91.6
	MCA	47	55	59	74	80	82	92	105
	MFS	50.0	60.0	60.0	80.0	90.0	90.0	100.0	110.0

ELECTRICAL BASED ON ELECTRIC HUMIDIFICATION WITHOUT ELECTRIC REHEAT

380/3/50	FLA	27.0	36.4	42.3	53.0	59.1	57.4	70.2	84.0
	MCA	30	41	47	61	67	65	79	94
	MFS	35.0	50.0	60.0	70.0	80.0	70.0	90.0	110.0
415/3/50	FLA	24.6	33.2	38.7	48.3	54.0	52.5	64.2	76.7
	MCA	28	37	43	55	61	60	72	86
	MFS	30.0	45.0	50.0	60.0	70.0	70.0	80.0	100.0
208/3/60	FLA	57.7	74.7	82.6	106.7	117.1	121.6	141.5	168.8
	MCA	65	84	92	122	133	138	160	190
	MFS	80.0	100.0	110.0	150.0	150.0	150.0	200.0	225.0
230/3/60	FLA	52.1	67.5	74.7	96.5	105.9	110.0	128.0	152.7
	MCA	59	76	84	110	120	125	145	171
	MFS	70.0	90.0	100.0	125.0	125.0	150.0	175.0	200.0
460/3/60	FLA	26.2	32.7	36.9	47.0	52.4	53.7	63.5	75.2
	MCA	30	37	41	54	60	61	72	84
	MFS	35.0	45.0	50.0	60.0	70.0	70.0	90.0	100.0

ELECTRICAL BASED ON NO ELECTRIC REHEAT NO ELECTRIC HUMIDIFICATION

380/3/50	FLA	21.5	30.9	36.8	38.7	44.8	43.1	55.9	69.7
	MCA	24	34	40	43	49	47	61	76
	MFS	30.0	45.0	50.0	50.0	60.0	60.0	80.0	100.0
415/3/50	FLA	19.6	28.2	33.7	35.2	40.9	39.4	51.1	63.6
	MCA	21	31	37	39	45	43	56	70
	MFS	25.0	40.0	50.0	50.0	60.0	50.0	70.0	90.0
208/3/60	FLA	47.7	64.7	72.6	80.6	91.0	95.5	115.4	142.8
	MCA	52	71	80	89	101	106	127	157
	MFS	70.0	90.0	100.0	110.0	125.0	125.0	175.0	200.0
230/3/60	FLA	43.1	58.5	65.7	72.9	82.3	86.4	104.4	129.1
	MCA	47	64	72	81	91	95	115	142
	MFS	60.0	80.0	90.0	110.0	125.0	125.0	150.0	175.0
460/3/60	FLA	21.7	28.2	32.4	35.2	40.6	41.9	51.7	63.4
	MCA	24	31	36	39	45	46	57	70
	MFS	30.0	40.0	45.0	50.0	60.0	60.0	70.0	90.0

FAN MOTOR FULL LOAD AMPS @ STANDARD AIR FLOW

380/3/50	5.1	6.7	8.4	6.7	8.4	8.7	11.9	15.7
415/3/50	4.6	6.2	7.7	6.2	7.7	8.0	10.9	14.4
208/3/60	9.0	11.8	14.0	11.8	14.0	15.3	20.6	29.1
230/3/60	8.1	10.7	12.7	10.7	12.7	13.8	18.6	26.3
460/3/60	4.1	5.4	6.4	5.4	6.4	6.9	9.3	13.2

COMPRESSOR FULL LOAD AMPS

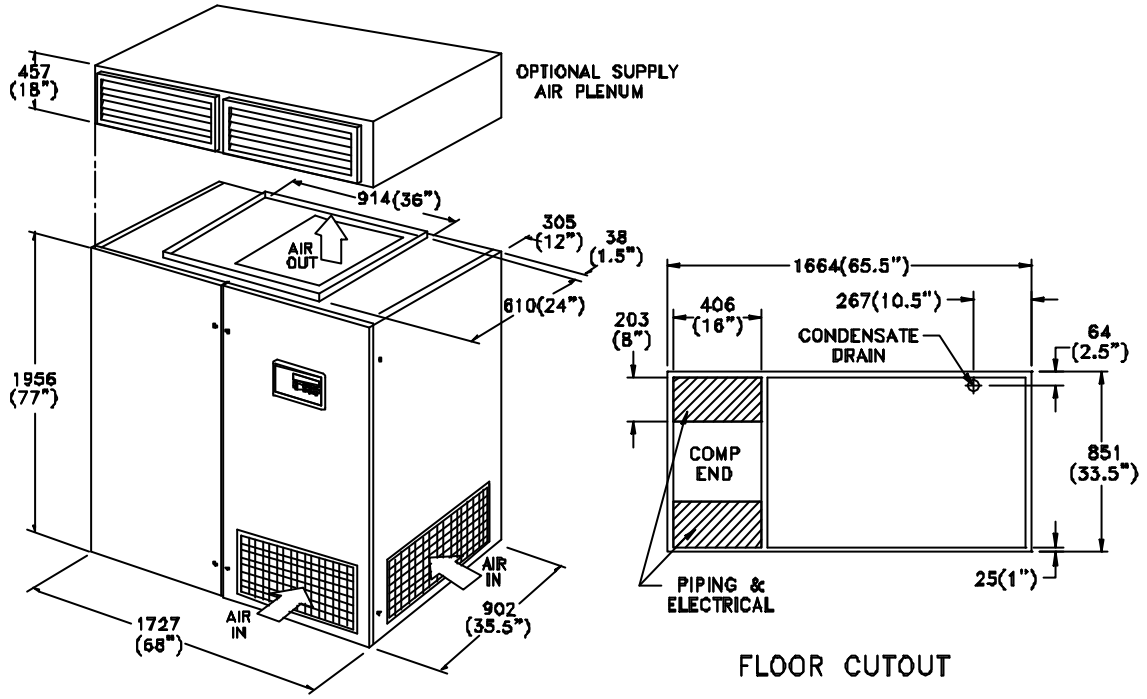
380/3/50	8.2	12.1	14.2	16.0	18.2	17.2	22.0	27.0
415/3/50	7.5	11.0	13.0	14.5	16.6	15.7	20.1	24.6
208/3/60	19.4	26.4	29.3	34.4	38.4	40.1	47.4	56.8
230/3/60	17.5	23.9	26.5	31.1	34.8	36.3	42.9	51.4
460/3/60	8.8	11.4	13.0	14.9	17.1	17.5	21.2	25.1

*A = AIR COOLED W = WATER COOLED G = GLYCOL COOLED
FLA = FULL LOAD AMPACITY MCA = MINIMUM CIRCUIT AMPACITY MFS = MAXIMUM FUSE SIZE

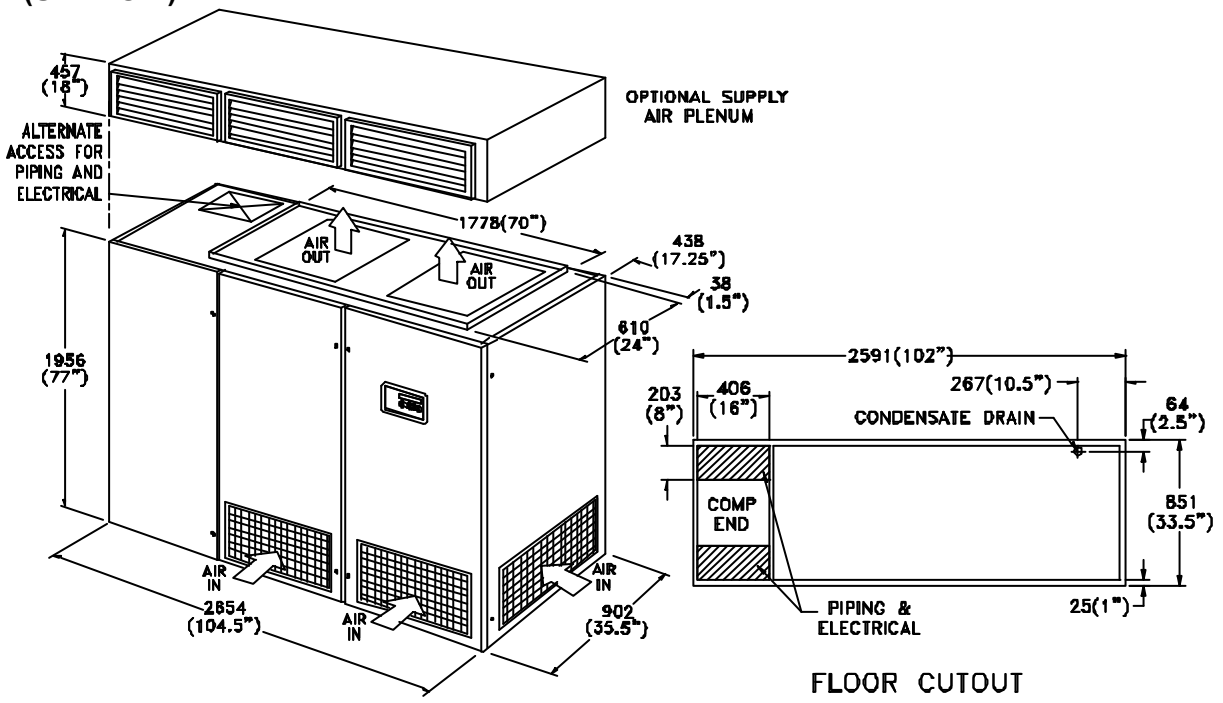
DB-AIRE SYSTEMS

AIR COOLED, WATER/ GLYCOL COOLED DIMENSIONAL DATA

MODEL 9, 11, 13 TON (UP FLOW)



MODEL 14, 16, 19, 22, 26 TON (UP FLOW)

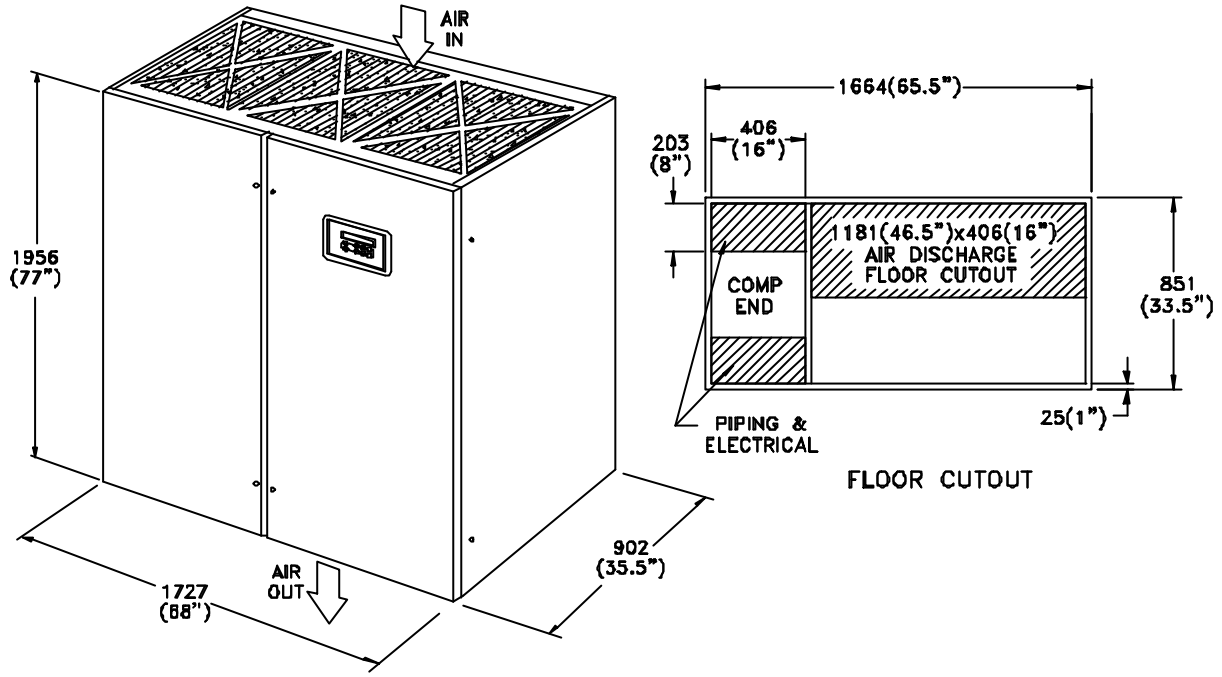


NOTES : 1.) MINIMUM SPACE REQUIRED IS 914MM (36") ON FRONT, RIGHT AND LEFT SIDES FOR SERVICE ACCESS.
2.) ALL DIMENSIONS ARE IN MILLIMETER (INCHES).

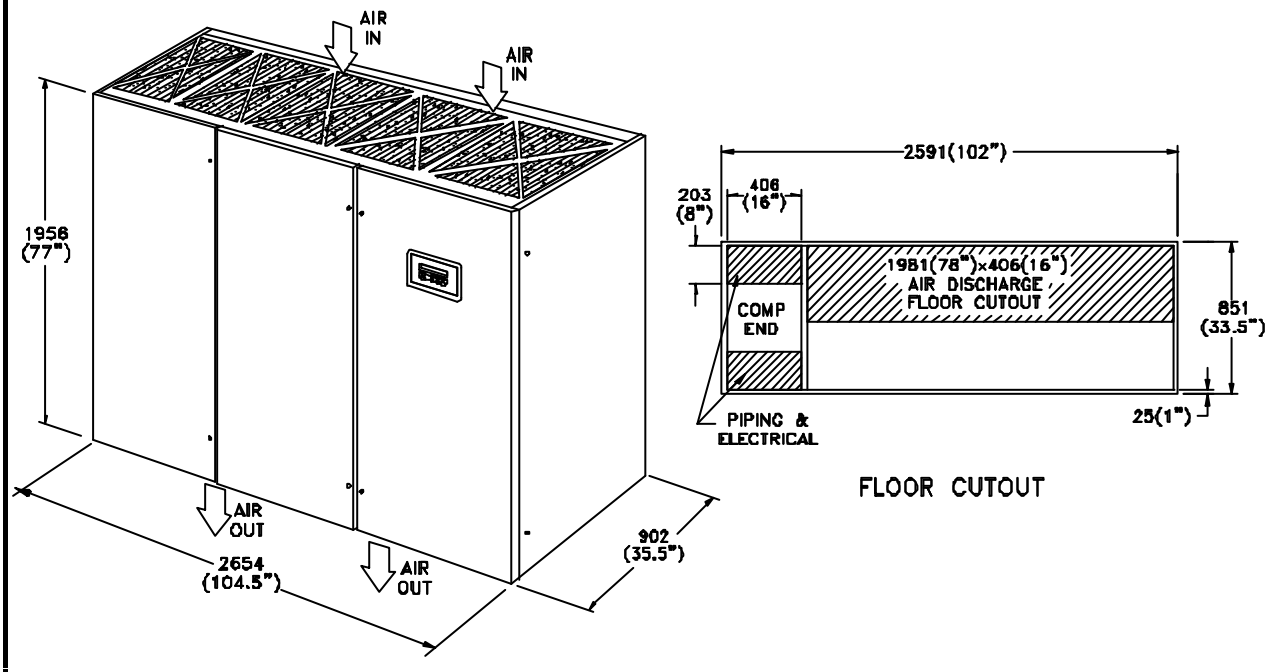
DB-AIRE SYSTEMS

AIR COOLED, WATER/ GLYCOL COOLED DIMENSIONAL DATA

MODEL 9, 11, 13 TON (DOWN FLOW)



MODEL 14, 16, 19, 22, 26 TON (DOWN FLOW)



NOTES : 1.) MINIMUM SPACE REQUIRED IS 914MM (36") ON FRONT, RIGHT AND LEFT SIDES FOR SERVICE ACCESS.
2.) ALL DIMENSIONS ARE IN MILLIMETER (INCHES).

CHILLED WATER DESIGN FEATURES

DB-TEMP MODELS
DB-AIRE MODELS

FRAME AND CABINET

The heliarc welded structural steel frame provides for maximum strength and ease of access. Side and front panels can be easily opened and removed with quarter-turn fasteners allowing full access to all unit components. All panels include 25 mm (1 inch) thick 1 1/2 lb density insulation for protection and sound attenuation. DB-Aire's unique frame design allows for your selection of either downflow or upflow air patterns in the same compact dimensions.

COIL SECTION

The coil is designed for draw through application with large face areas for low velocity to reduce turbulence and provide greater efficiency in the cooling and dehumidification process. The chilled water flow is controlled by a three-way modulating mixing valve for accurate and economical temperature and dehumidification control.

FAN SECTION

The 380mm (15 inch) diameter, centrifugal forward-curved, double-width, double-inlet blower configuration is engineered for quiet, reliable operation. The blowers are AMCA certified and factory certified dynamically balanced. All DB-Aire models have a two belt drive system to assure reliability should one belt fail. The draw through design ensures even air distribution across the chilled water coil. It also ensures low internal cabinet pressure losses, and static sealing of the filter section. The fan motor is totally enclosed and is mounted on an adjustable slide base.

FILTERS

Computer room air cleanliness is enhanced by pleated 30 percent efficient filters (based on ASHRAE 52-76). Standard DB-Aire filters are 100mm (4 inch) deep, and may be changed through the side of the unit. DB Temp filters are 50mm (2 inch) deep and are changed by opening the front panel.

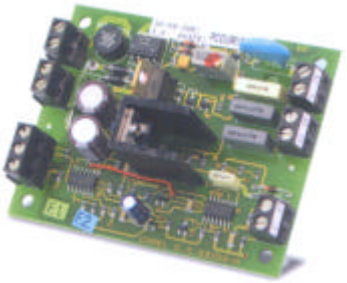
ELECTRICAL REHEAT

The three stage stainless steel finned tubular reheat coils provide ample capacity to maintain room dry bulb conditions during a system call for dehumidification. Three equal stages give a more accurate controlled response to the requirements of the computer room. The heating elements are protected by thermal safety switches. The three stages of reheat create a noticeable lowering of energy use.

HUMIDIFICATION (OPTIONAL)

The disposable cartridge electric stream generator humidifier provides humidification down stream of the cooling coil. The humidifier is designed to allow all units at any voltage to produce full rated steam output at an optimum low water level.

DB-AIRE UMID INTERFACE



The DB-Aire Umid interface allows the control of humidifiers directly from the DB-Aire microprocessor controller.

Steam Generator Humidifier

DB-TEMP CHILLED WATER SYSTEMS

CHILLED WATER PERFORMANCE DATA

PERFORMANCE WITH 7.2°C (45°F) CHILLED WATER AT SPECIFIED FLOW RATE

CAPACITY DATA (kW) AT 7.2 DEGREE CELSIUS CHILLED WATER

MODEL		DBTCD/U-02	DBTCD/U-03	DBTCD/U-04	DBTCD/U-05
26.7DB/19.4WB 50% RH	TOTAL	11.3	15.1	21.2	24.8
	SENSIBLE	7.9	11.0	15.3	18.3
	FLOW RATE L/SEC	0.5	0.6	0.9	1.1
	PRESSURE DROP KPA	20.7	33.8	15.2	20.0
23.9DB/16.9WB 50% RH	TOTAL	7.9	10.6	14.9	17.5
	SENSIBLE	6.8	9.5	13.1	15.8
	FLOW RATE L/SEC	0.3	0.5	0.6	0.8
	PRESSURE DROP KPA	11.0	18.6	8.3	11.0
23.9DB/16.1WB 45% RH	TOTAL	7.3	9.9	13.9	16.4
	SENSIBLE	7.1	9.9	13.7	16.4
	FLOW RATE L/SEC	0.3	0.4	0.6	0.7
	PRESSURE DROP KPA	9.7	16.5	6.9	9.7
22.2DB/15.6WB 50% RH	TOTAL	6.4	8.7	12.1	14.3
	SENSIBLE	6.2	8.7	12.0	14.3
	FLOW RATE L/SEC	0.3	0.4	0.5	0.6
	PRESSURE DROP KPA	8.3	13.1	5.5	7.6
22.2DB/14.8WB 45% RH	TOTAL	6.1	8.4	11.7	13.9
	SENSIBLE	6.1	8.4	11.7	13.9
	FLOW RATE L/SEC	0.3	0.4	0.5	0.6
	PRESSURE DROP KPA	7.6	12.4	5.5	6.9

NET CAPACITY MBH AT STANDARD AIRFLOW

80DB/67WB 50% RH	TOTAL	38.6	51.4	72.5	84.7
	SENSIBLE	27.1	37.6	52.1	62.4
	FLOW RATE GPM	7.7	10.3	14.5	17.0
	PRESSURE DROP PSI	3.0	4.9	2.2	2.9
75DB/62.5WB 50% RH	TOTAL	27.0	36.2	50.8	59.7
	SENSIBLE	23.2	32.4	44.7	53.8
	FLOW RATE GPM	5.4	7.3	10.2	11.9
	PRESSURE DROP PSI	1.6	2.7	1.2	1.6
75DB/61WB 45% RH	TOTAL	24.9	33.8	47.3	55.9
	SENSIBLE	24.2	33.8	46.9	55.9
	FLOW RATE GPM	5.0	6.8	9.5	11.2
	PRESSURE DROP PSI	1.4	2.4	1.0	1.4
72DB/60WB 50% RH	TOTAL	21.9	29.6	41.4	48.8
	SENSIBLE	21.0	29.6	40.8	48.8
	FLOW RATE GPM	4.4	5.9	8.3	9.8
	PRESSURE DROP PSI	1.2	1.9	0.8	1.1
72DB/58.6WB 45% RH	TOTAL	20.9	28.7	39.9	47.3
	SENSIBLE	20.9	28.7	39.9	47.3
	FLOW RATE GPM	4.2	5.7	8.0	9.5
	PRESSURE DROP PSI	1.1	1.8	0.8	1.0

DB-TEMP CHILLED WATER SYSTEMS

BLOWER DATA

MODEL		DBTCD/U-02	DBTCD/U-03	DBTCD/U-04	DBTCD/U-05
STANDARD AIR VOLUME	CMH CFM	1700 1000	2550 1500	3400 2000	4250 2500
STANDARD FAN MOTOR	KW HP	0.75 1.00	0.75 1.00	0.75 1.00	1.12 1.50
OPTIONAL AIR VOLUME	CMH CFM	2550 1500	3060 1800	4250 2500	4590 2700
OPTIONAL FAN MOTOR	KW HP	1.12 1.50	1.12 1.50	1.12 1.50	1.50 2.00
EXT. STATIC PRESSURE	MM W.G. ING W.G.	7.6 0.3	7.6 0.3	7.6 0.3	7.6 0.3
SIZE (QUANTITY)	MM INS	254 x 254 (1) 10 x 10 (1)	254 x 254 (1) 10 x 10 (1)	254 x 254 (1) 10 x 10 (1)	254 x 254 (1) 10 x 10 (1)

CHILLED WATER COIL DATA @ STANDARD AIRFLOW

FACE AREA	M^2 FT^2	0.28 3	0.28 3	0.46 5	0.46 5
ROWS OF COIL		4	4	4	4
FACE VELOCITY	M/S FPM	1.69 333	2.54 500	2.03 400	2.54 500

REHEAT SECTION

STANDARD ELECTRIC	KW MBH	6.0 20.5	12.0 41.0	12.0 41.0	12.0 41.0

HUMIDIFIER SECTION (OPTIONAL)

STANDARD STEAM	KG/HR	4.6	4.6	4.6	4.6
GENERATOR CAPACITY	LB/HR KW	10 3.6	10 3.6	10 3.6	10 3.6

FILTERS STANDARD 50 MM (2 INCH) THICK 30% ASHRAE STANDARD 52-76

610 x 610 (24 x 24)		1	1	1	1

CONNECTION SIZES

CHILLED WATER	INS(OD)	1 1/8	1 1/8	1 1/8	1 1/8
HUMIDIFIER	INS	1/4	1/4	1/4	1/4
CONDENSATE DRAIN	INS(OD)	7/8	7/8	7/8	7/8

U – UPFLOW D - DOWN FLOW

DB-TEMP CHILLED WATER SYSTEMS

CHILLED WATER ELECTRICAL DATA

ELECTRICAL BASED ON STANDARD UNITS (WITH ELECTRIC REHEAT AND ELECTRIC HUMIDIFIER)

MODEL		DBTCD/U-02	DBTCD/U-03	DBTCD/U-04	DBTCD/U-05
380/3/50	FLA	10.9	20.0	20.0	21.0
	MCA	13	25	25	26
	MFS	15.0	25.0	25.0	30.0
415/3/50	FLA	10.0	18.4	18.4	19.3
	MCA	12	23	23	23
	MFS	12.0	25.0	25.0	25.0
208/3/60	FLA	20.2	36.8	36.8	38.3
	MCA	24	45	45	47
	MFS	25.0	45.0	45.0	50.0
230/3/60	FLA	18.3	33.3	33.3	34.6
	MCA	22	41	41	42
	MFS	25.0	45.0	45.0	45.0
460/3/60	FLA	9.1	16.7	16.7	17.3
	MCA	11	20	20	21
	MFS	12.0	20.0	20.0	25.0

ELECTRICAL BASED ON ELECTRIC HUMIDIFICATION WITHOUT ELECTRIC REHEAT

380/3/50	FLA	7.3	7.3	7.3	8.3
	MCA	9	9	9	10
	MFS	10.0	10.0	10.0	10.0
415/3/50	FLA	6.7	6.7	6.7	7.6
	MCA	8	8	8	9
	MFS	10.0	10.0	10.0	10.0
208/3/60	FLA	13.5	13.5	13.5	15.0
	MCA	16	16	16	17
	MFS	17.5	17.5	17.5	17.5
230/3/60	FLA	12.2	12.2	12.2	13.5
	MCA	14	14	14	16
	MFS	15.0	15.0	15.0	17.5
460/3/60	FLA	6.1	6.1	6.1	6.7
	MCA	7	7	7	8
	MFS	10.0	10.0	10.0	10.0

ELECTRICAL BASED ON NO ELECTRIC REHEAT NO ELECTRIC HUMIDIFICATION

380/3/50	FLA	1.8	1.8	1.8	2.8
	MCA	2	2	2	4
	MFS	6.0	6.0	6.0	10.0
415/3/50	FLA	1.7	1.7	1.7	2.6
	MCA	2	2	2	3
	MFS	6.0	6.0	6.0	10.0
208/3/60	FLA	3.5	3.5	3.5	5.0
	MCA	4	4	4	6
	MFS	12.0	12.0	12.0	15.0
230/3/60	FLA	3.2	3.2	3.2	4.5
	MCA	4	4	4	6
	MFS	10.0	10.0	10.0	15.0
460/3/60	FLA	1.6	1.6	1.6	1.6
	MCA	2	2	2	3
	MFS	6.0	6.0	6.0	10.0

*A-AIR COOLED W-WATER COOLED G-GLYCOL COOLED

FLA = FULL LOAD AMPACITY MCA = MINIMUM CIRCUIT AMPACITY MFS = MAXIMUM FUSE SIZE

DB-AIRE CHILLED WATER SYSTEMS

CHILLED WATER PERFORMANCE DATA

PERFORMANCE WITH 7.2°C(45°F) CHILLED WATER AT SPECIFIED FLOW RATE
NET CAPACITY KW AT STANDARD AIRFLOW

MODEL		DBCD/U-07	DBCD/U-09	DBCD/U-11	DBCD/U-13	DBCD/U-15	DBCD/U-18	DBCD/U-22	DBCD/U-26	DBCD-30
26.7DB/19.4WB 50% RH	TOTAL	39.8	56.3	66.7	74.9	88.3	112.5	138.0	153.6	183.9
	SENSIBLE	32.2	42.5	47.6	51.5	64.9	78.7	94.0	105.9	124.3
	FLOW RATE L/SEC	1.7	2.4	2.9	3.2	3.8	4.9	6.0	6.6	7.9
	PRESSURE DROP KPA	14.5	22.8	31.7	40.7	47.6	80.7	129.0	35.9	53.1
23.9DB/16.9WB 50% RH	TOTAL	28.2	39.7	46.9	52.9	62.0	79.4	98.0	108.5	130.4
	SENSIBLE	28.2	36.9	40.8	43.9	55.9	67.4	80.1	90.3	105.5
	FLOW RATE L/SEC	1.2	1.7	2.0	2.3	2.7	3.4	4.2	4.7	5.6
	PRESSURE DROP KPA	11.0	15.9	20.0	24.8	29.0	46.9	73.8	22.8	31.7
23.9DB/16.1WB 45% RH	TOTAL	27.2	37.5	43.6	48.6	57.9	73.0	89.4	99.7	119.0
	SENSIBLE	27.2	37.5	42.8	45.5	57.9	70.0	82.7	93.9	108.9
	FLOW RATE L/SEC	1.2	1.6	1.9	2.1	2.5	3.1	3.9	4.3	5.1
	PRESSURE DROP KPA	11.0	14.5	18.6	22.8	26.2	41.4	64.2	20.7	28.3
22.2DB/15.6WB 50% RH	TOTAL	23.3	32.6	38.2	42.9	50.7	64.5	79.5	88.1	105.8
	SENSIBLE	23.3	32.6	37.2	39.7	50.7	61.2	72.5	81.9	95.4
	FLOW RATE L/SEC	1.0	1.4	1.6	1.8	2.2	2.8	3.4	3.8	4.6
	PRESSURE DROP KPA	9.7	13.1	15.9	20.0	22.1	34.5	53.8	17.9	24.1
22.2DB/14.8WB 45% RH	TOTAL	23.3	31.9	36.8	40.7	48.9	61.2	74.6	83.5	99.0
	SENSIBLE	23.3	31.9	36.8	40.7	48.9	61.2	74.6	83.5	99.0
	FLOW RATE L/SEC	1.0	1.4	1.6	1.8	2.1	2.6	3.2	3.6	4.3
	PRESSURE DROP KPA	9.7	13.1	15.9	18.6	21.4	32.4	20.6	16.6	22.8

NET CAPACITY MBH AT STANDARD AIRFLOW

80DB/67WB 50% RH	TOTAL	135.8	192.1	227.4	255.5	301.3	383.9	471.1	523.9	627.7
	SENSIBLE	109.8	145.0	162.5	175.8	221.4	268.5	320.7	361.4	424.0
	FLOW RATE GPM	27.2	38.5	45.5	51.2	60.3	76.9	94.3	104.9	125.7
	PRESSURE DROP PSI	2.1	3.3	4.6	5.9	6.9	11.7	18.7	5.2	7.7
75DB/62.5WB 50% RH	TOTAL	96.2	135.3	160.1	180.6	211.5	270.8	334.2	370.2	445.0
	SENSIBLE	96.2	125.8	139.3	149.9	190.7	230.0	273.2	308.1	360.1
	FLOW RATE GPM	19.3	27.1	32.0	36.1	42.3	54.2	66.9	74.1	89.1
	PRESSURE DROP PSI	1.6	2.3	2.9	3.6	4.2	6.8	10.7	3.3	4.6
75DB/61WB 45% RH	TOTAL	92.8	127.9	148.8	165.7	197.5	248.9	305.0	340.1	406.0
	SENSIBLE	92.8	127.9	145.9	155.4	197.5	238.8	282.1	320.2	371.7
	FLOW RATE GPM	18.6	25.6	29.8	33.2	39.5	49.8	61.1	68.1	81.3
	PRESSURE DROP PSI	1.6	2.1	2.7	3.3	3.8	6.0	9.3	3.0	4.1
72DB/60WB 50% RH	TOTAL	79.6	111.1	130.5	146.5	173.0	220.1	271.3	300.6	360.8
	SENSIBLE	79.6	111.1	127.0	135.6	173.0	208.9	247.4	279.4	325.6
	FLOW RATE GPM	15.9	22.2	26.1	29.3	34.6	44.1	54.3	60.2	72.2
	PRESSURE DROP PSI	1.4	1.9	2.3	2.9	3.2	5.0	7.8	2.6	3.5
72DB/58.6WB 45% RH	TOTAL	79.4	108.9	125.4	138.7	167.0	208.9	254.4	284.8	337.9
	SENSIBLE	79.4	108.9	125.4	138.7	167.0	208.9	254.4	284.8	337.9
	FLOW RATE GPM	15.9	21.8	25.1	27.8	33.4	41.8	50.9	57.0	67.7
	PRESSURE DROP PSI	1.4	1.9	2.3	2.7	3.1	4.7	7.1	2.4	3.3

DB-AIRE CHILLED WATER SYSTEMS

BLOWER DATA

MODEL		DBCD/U-07	DBCD/U-09	DBCD/U-11	DBCD/U-13	DBCD/U-15	DBCD/U-18	DBCD/U-22	DBCD/U-26	DBCD-30
STANDARD AIR VOLUME	CMH CFM	8925 5250	10200 6000	10200 6000	10200 6000	16150 9500	17000 10000	18700 11000	21080 12400	23800 14000
STANDARD FAN MOTOR	KW HP	2.2 3.0	3.0 4.0	3.0 4.0	3.7 5.0	3.7 5.0	5.6 7.5	5.6 7.5	7.5 10.0	7.5 10.0
OPTIONAL AIR VOLUME	CMH CFM	10200 6000	11900 7000	11900 7000	11560 6800	18360 10800	19210 11300	20400 12000	23120 13600	N/A N/A
OPTIONAL FAN MOTOR	KW HP	3.0 4.0	3.7 5.0	3.7 5.0	5.6 7.5	5.6 7.5	7.5 10.0	7.5 10.0	7.5 10.0	N/A N/A
EXT. STATIC PRESSURE	MM WG INS WG	12.7 0.5	12.7 0.5	12.7 0.5	12.7 0.5	12.7 0.5	12.7 0.5	12.7 0.5	12.7 0.5	12.7 0.5
SIZE (QUANTITY)	MM INS	381x381(1) 15x15(1)	381x381(1) 15x15(1)	381x381(1) 15x15(1)	381x381(1) 15x15(1)	381x381(2) 15x15(2)	381x381(2) 15x15(2)	381x381(2) 15x15(2)	381x381(2) 15x15(2)	457x457(2) 18x18(2)

CHILLED WATER COIL DATA @ STANDARD AIRFLOW

FACE AREA	M^2 FT^2	1.16 12.50	1.16 12.50	1.16 12.50	1.16 12.50	2.32 25.00	2.32 25.00	2.32 25.00	2.32 25.00	2.88 31.00
ROWS OF COIL		3	4	5	6	3	4	5	6	6
FACE VELOCITY	M/S FPM	2.14 420	2.44 480	2.44 480	2.44 480	1.93 380	2.03 400	2.24 440	2.52 496	2.30 452

CHILLED WATER CONTROLS (DESIGN PRESSURE 1722 KPA (HIGH PRESSURE OPTIONAL)

CONTROL METHOD		MODULATE								
VALVE BODY		3-WAY								
VALVE CV		10	10	16	25	25	40	40	40	40
VALVE SIZE	MM(IN)	25.4(1)	25.4(1)	32.1(1¼)	38.0(1½)	38.0(1½)	51.0(2)	51.0(2)	51.0(2)	51.0(2)

REHEAT SECTION

STANDARD ELECTRIC	KW MBH	15.0 51.2	15.0 51.2	15.0 51.2	15.0 51.2	22.5 76.8	22.5 76.8	22.5 76.8	22.5 76.8	22.5 76.8

HUMIDIFIER SECTION (OPTIONAL)

STANDARD STEAM	KG/HR	4.5	4.5	4.5	4.5	13.6	13.6	13.6	13.6	13.6
GENERATOR CAPACITY	LB/HR KW	10 3.6	10 3.6	10 3.6	10 3.6	30 9.4	30 9.4	30 9.4	30 9.4	30 9.4

FILTERS STANDARD 100 MM (4INCH) THICK 30% ASHRAE STANDARD 52-75

508x635 (20x25)	-	-	-	-	1	1	1	1	5
406x635 (16x25)	3	3	3	3	4	4	4	4	-

CONNECTION SIZES

CHILLED WATER	INS(OD)	1 1/8	1 1/8	1 3/8	1 5/8	1 5/8	2 1/8	2 1/8	2 1/8	2 1/8
HUMIDIFIER	INS(OD)	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
CONDENSATE DRAIN	INS(OD)	7/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8

DB-AIRE CHILLED WATER SYSTEMS

CHILLED WATER ELECTRICAL DATA

ELECTRICAL BASED ON STANDARD UNITS (WITH ELECTRIC REHEAT AND ELECTRIC HUMIDIFIER)

MODEL		DBCD/U-07	DBCD/U-09	DBCD/U-11	DBCD/U-13	DBCD/U-15	DBCD/U-18	DBCD/U-22	DBCD/U-26	DBCD/U-30
380/3/50	FLA	27.9	29.5	29.5	31.2	42.6	46.1	46.1	49.9	49.9
	MCA	34	35	35	37	51	55	55	58	58
	MFS	35.0	35.0	35.0	40.0	60.0	60.0	60.0	60.0	60.0
415/3/50	FLA	25.5	27.1	27.1	28.6	39.0	42.2	42.2	45.7	45.7
	MCA	31	32	32	34	47	50	50	54	54
	MFS	35.0	35.0	35.0	35.0	50.0	50.0	50.0	60.0	60.0
208/3/60	FLA	50.6	53.5	53.5	55.7	76.5	83.0	83.0	91.5	91.5
	MCA	61	64	64	66	92	99	99	107	107
	MFS	70.0	70.0	70.0	70.0	100.0	100.0	100.0	110.0	110.0
230/3/60	FLA	45.8	48.4	48.4	50.4	69.2	75.1	75.1	82.8	82.8
	MCA	55	58	58	60	83	89	89	97	97
	MFS	60.0	60.0	60.0	60.0	90.0	90.0	90.0	100.0	100.0
460/3/60	FLA	22.9	24.2	24.2	25.2	34.6	37.5	37.5	41.4	41.4
	MCA	28	29	29	30	42	45	45	48	48
	MFS	30.0	30.0	30.0	30.0	45.0	45.0	45.0	50.0	50.0

ELECTRICAL BASED ON ELECTRIC HUMIDIFICATION WITHOUT ELECTRIC REHEAT

380/3/50	FLA	10.6	12.2	12.2	13.9	22.7	26.2	26.2	30.0	30.0
	MCA	12	14	14	15	26	30	30	34	34
	MFS	12.0	15.0	15.0	15.0	30.0	30.0	30.0	35.0	35.0
415/3/50	FLA	9.6	11.2	11.2	12.7	20.8	24.0	24.0	27.5	27.5
	MCA	11	12	12	14	24	27	27	31	31
	MFS	12.0	12.0	12.0	15.0	25.0	30.0	30.0	35.0	35.0
208/3/60	FLA	18.9	21.8	21.8	24.0	40.1	46.7	46.7	55.2	55.2
	MCA	21	24	24	27	47	53	53	62	62
	MFS	25.0	25.0	25.0	30.0	50.0	60.0	60.0	70.0	70.0
230/3/60	FLA	17.1	19.7	19.7	21.7	36.3	42.2	42.2	49.9	49.9
	MCA	19	22	22	24	42	48	48	56	56
	MFS	20.0	25.0	25.0	25.0	45.0	50.0	50.0	60.0	60.0
460/3/60	FLA	8.6	9.9	9.9	10.9	18.2	21.1	21.1	25.0	25.0
	MCA	10	11	11	12	21	24	24	28	28
	MFS	10.0	12.0	12.0	12.0	25.0	25.0	25.0	30.0	30.0

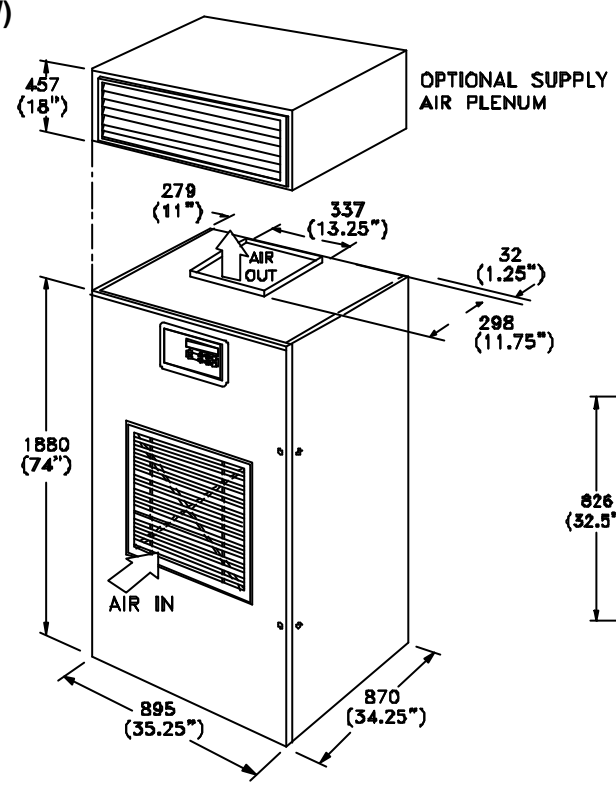
ELECTRICAL BASED ON NO ELECTRIC REHEAT NO ELECTRIC HUMIDIFICATION

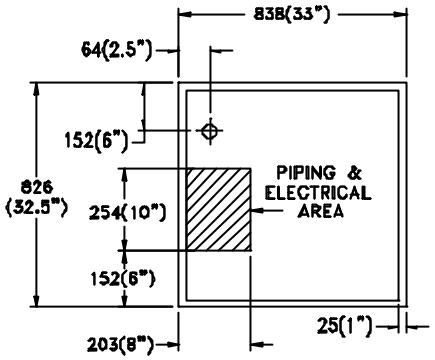
380/3/50	FLA	5.1	6.7	6.7	8.4	8.4	11.9	11.9	15.7	15.7
	MCA	6	8	8	11	11	15	15	20	20
	MFS	15.0	20.0	20.0	25.0	25.0	40.0	40.0	50.0	50.0
415/3/50	FLA	4.6	6.2	6.2	7.7	7.7	10.9	10.9	14.4	14.4
	MCA	6	8	8	10	10	14	14	18	18
	MFS	15.0	20.0	20.0	25.0	25.0	35.0	35.0	45.0	45.0
208/3/60	FLA	9.0	11.8	11.8	14.0	14.0	20.6	20.6	29.1	29.1
	MCA	11	15	15	18	18	26	26	36	36
	MFS	30.0	35.0	35.0	45.0	45.0	70.0	70.0	90.0	90.0
230/3/60	FLA	8.1	10.7	10.7	12.7	12.7	18.6	18.6	26.3	26.3
	MCA	10	13	13	16	16	23	23	33	33
	MFS	25.0	35.0	35.0	40.0	40.0	60.0	60.0	80.0	80.0
460/3/60	FLA	4.1	5.4	5.4	6.4	6.4	9.3	9.3	13.2	13.2
	MCA	5	7	7	8	8	12	12	17	17
	MFS	12.0	17.5	17.5	20.0	20.0	30.0	30.0	40.0	40.0

*A-AIR COOLED W-WATER COOLED G-GLYCOL COOLED
FLA = FULL LOAD AMPACITY MCA = MINIMUM CIRCUIT AMPACITY MFS = MAXIMUM FUSE SIZE

AIR COOLED, WATER/ GLYCOL COOLED/ CHILLED WATER DIMENSIONAL DATA

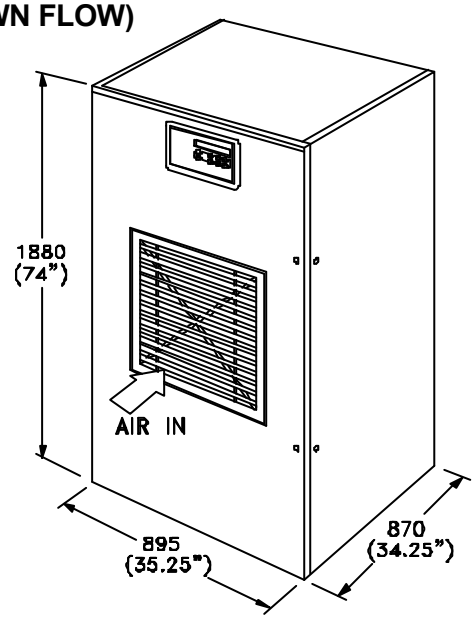
MODEL 2, 3, 4, 5 TON
(UP FLOW)

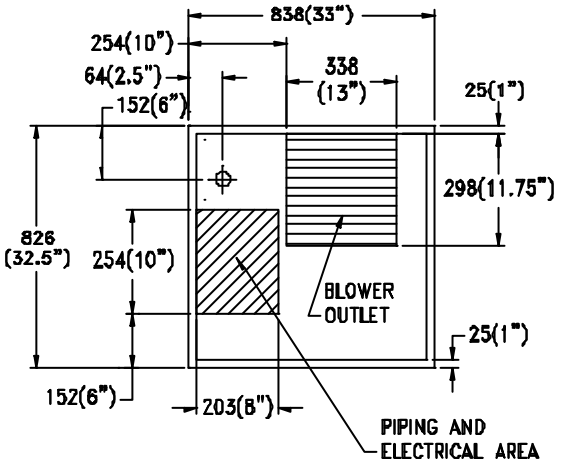




FLOOR CUTOUT

MODEL 2, 3, 4, 5 TON
(DOWN FLOW)



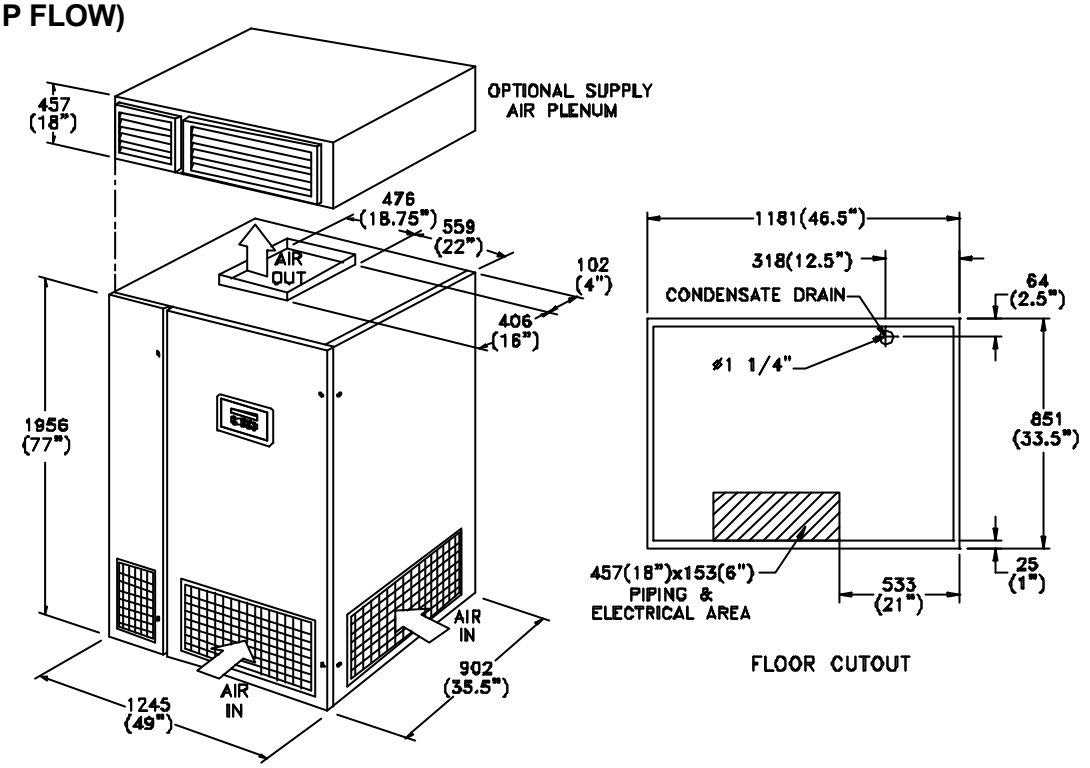


FLOOR CUTOUT

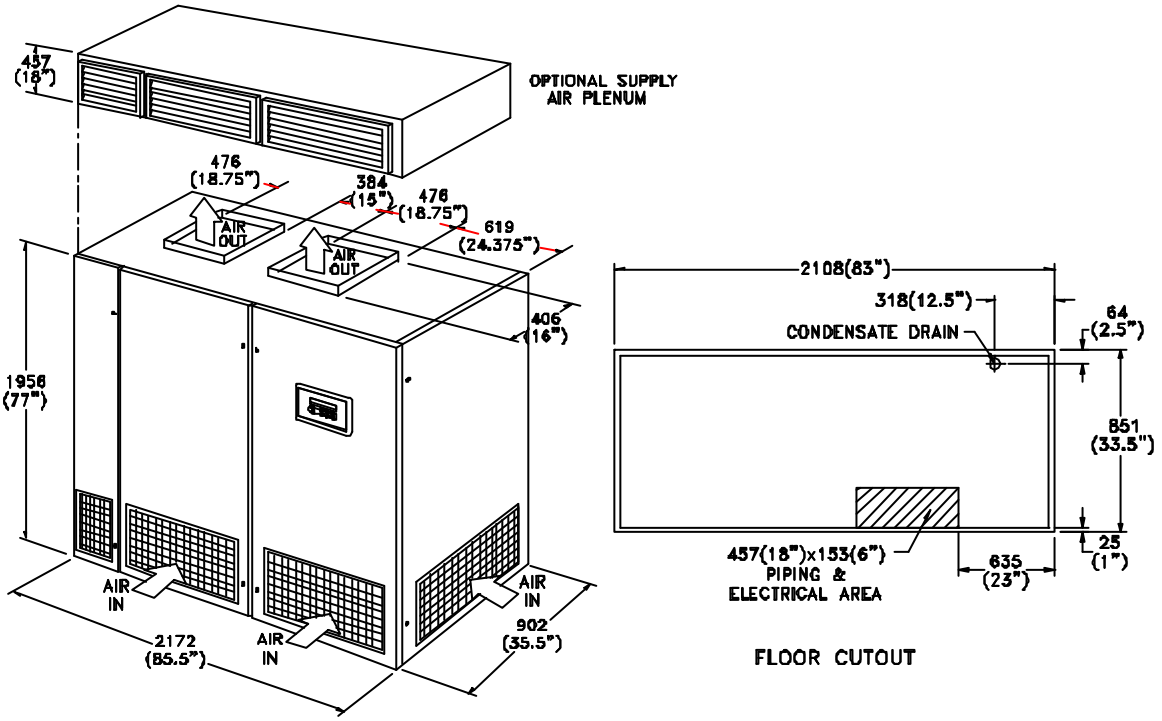
NOTES : 1.) MINIMUM SPACE REQUIRED IS 914MM (36") ON FRONT ,RIGHT AND LEFT SIDES FOR SERVICE ACCESS.
2.) ALL DIMENSIONS ARE IN MILLIMETER (INCHES).

DIMENSIONAL DATA

MODEL 7, 9, 11, 13 TON (UP FLOW)



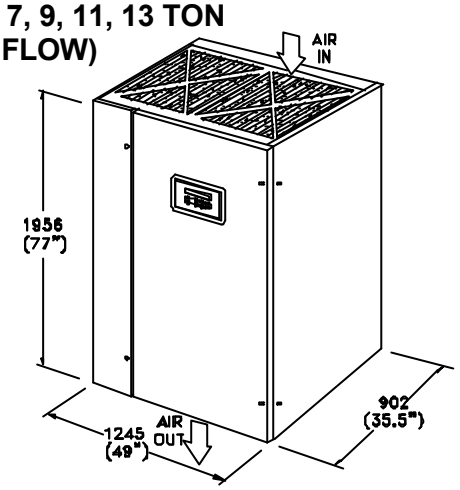
MODEL 15, 18, 22, 26 TON (UP FLOW)

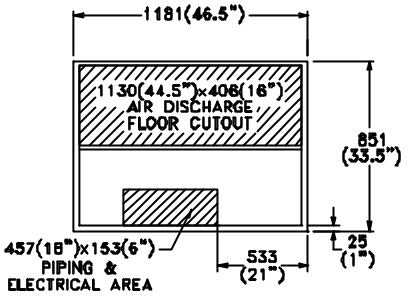


NOTES : 1.) MINIMUM SPACE REQUIRED IS 914MM (36") ON FRONT, RIGHT AND LEFT SIDES FOR SERVICE ACCESS.
2.) ALL DIMENSIONS ARE IN MILLIMETER (INCHES).
3.) DEPTH IS 40" FOR 5-ROW AND 6-ROW COIL.

DIMENSIONAL DATA

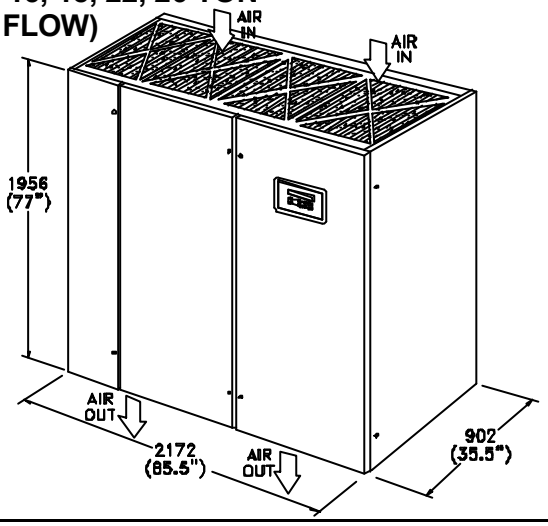
MODEL 7, 9, 11, 13 TON (DOWN FLOW)

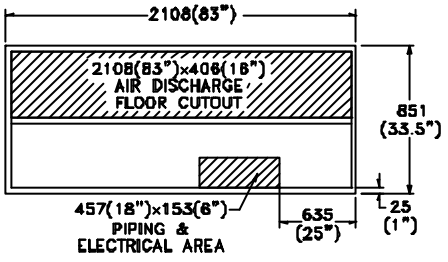




FLOOR CUTOUT

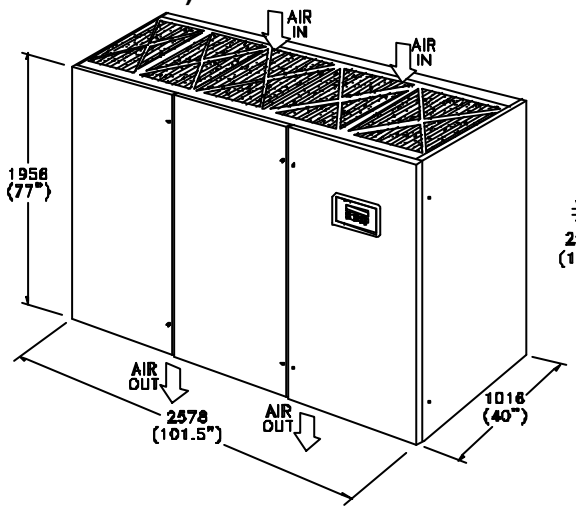
MODEL 15, 18, 22, 26 TON (DOWN FLOW)

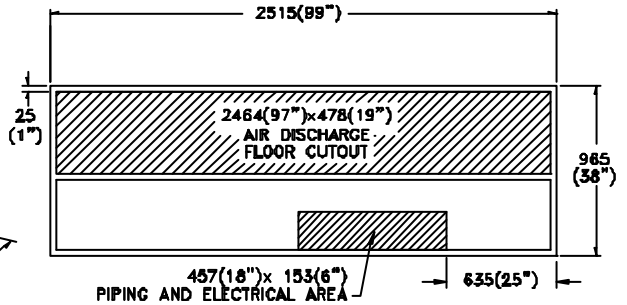




FLOOR CUTOUT

MODEL 30 TON (DOWN FLOW)



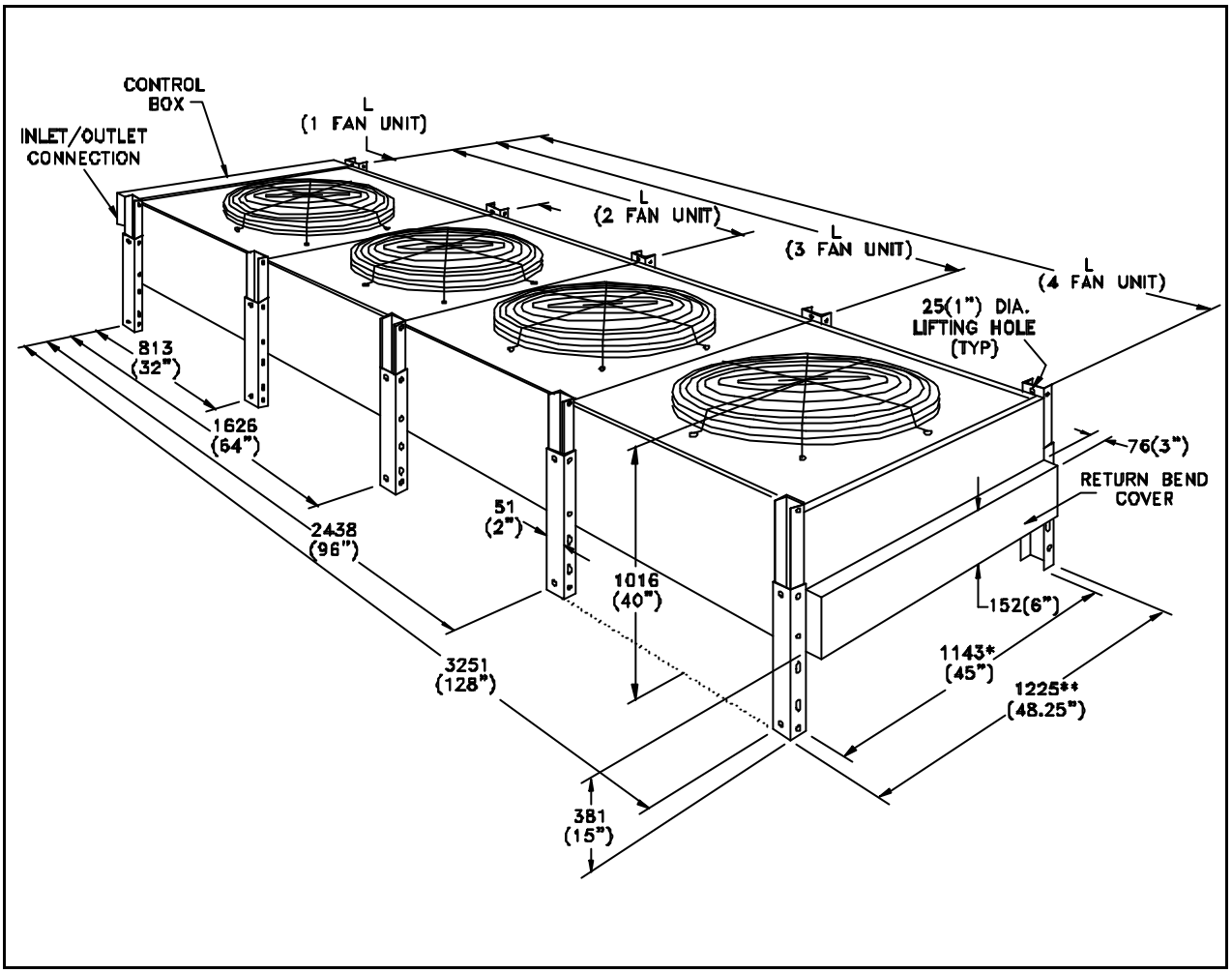


FLOOR CUTOUT

NOTES : 1.) MINIMUM SPACE REQUIRED IS 914MM (36") ON FRONT, RIGHT AND LEFT SIDES FOR SERVICE ACCESS.
2.) ALL DIMENSIONS ARE IN MILLIMETER (INCHES).
3.) DEPTH IS 40" FOR 5-ROW AND 6-ROW COIL.

REMOTE AIR-COOLED CONDENSERS

TECHNICAL DATA

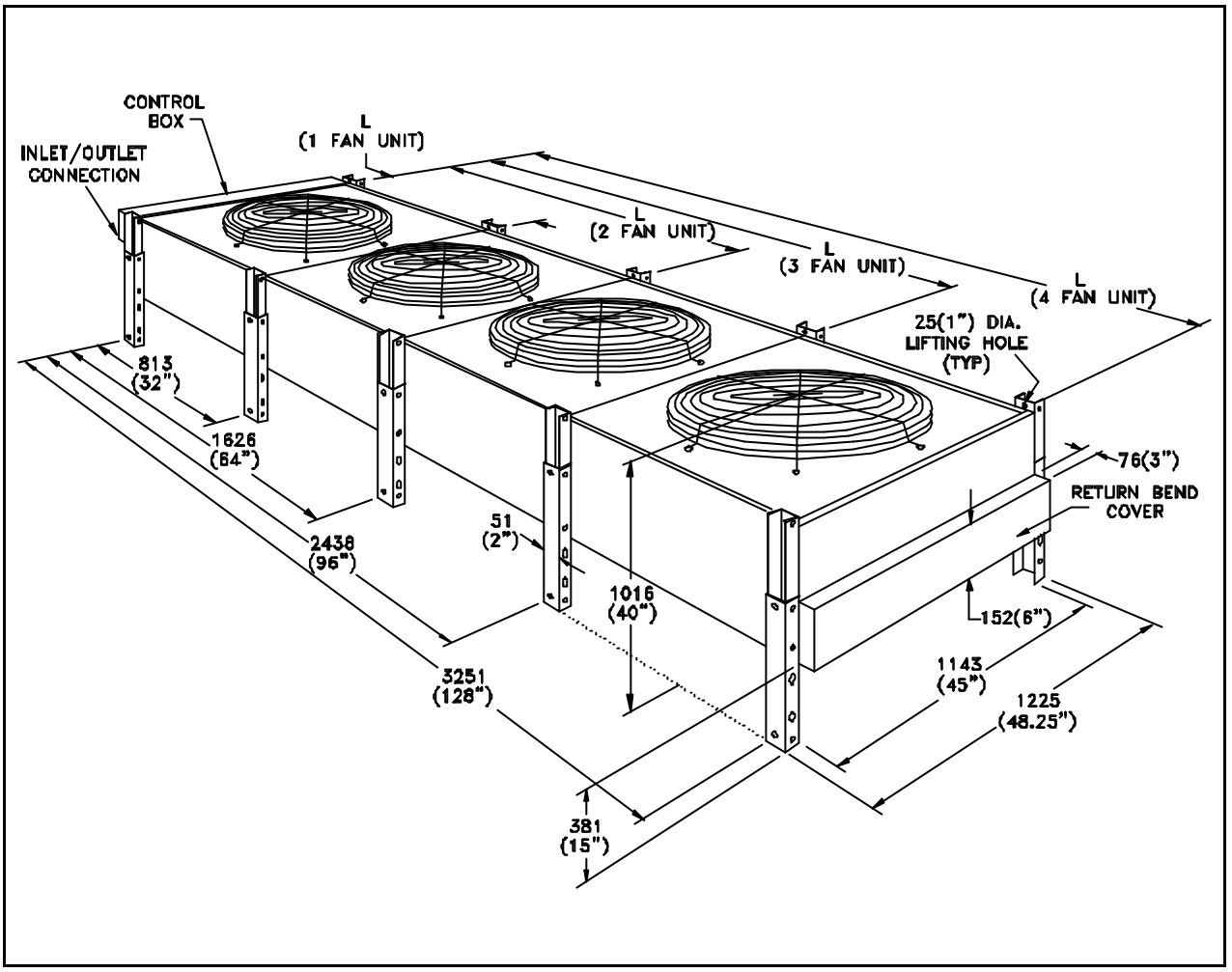


MODEL	PHYSICAL DATA				ELECTRICAL DATA						
	LENGTH 'L'	FANS		APPROX.	MTR	RPM		MTR FLA (3-PHASE)			
		QTY	TOTAL L/S	WEIGHT				380V	415V	208V	230V
	MM (INS)		(CFM)	KG(LBS)	QTY	50Hz	60Hz	(50Hz)	(50Hz)	(60Hz)	(60Hz)
DBRC 04	870 (34¼)	1	2030 (4300)	100 (220)	1	900	1080	-	-	-	-
DBRC 06	870 (34¼)	1	3210 (6800)	111 (244)	1	950	1075	2.0	1.8	3.6	3.3
DBRC 08	870 (34¼)	1	3210 (6800)	122 (268)	1	950	1075	2.0	1.8	3.6	3.3
DBRC 10	870 (34¼)	1	3210 (6800)	134 (295)	1	950	1075	2.0	1.8	3.6	3.3
DBRC 11	870 (34¼)	1	3210 (6800)	180 (400)	1	950	1075	2.0	1.8	3.6	3.3
DBRC 13	1683 (66¼)	2	6420 (13600)	190 (420)	2	950	1075	4.0	3.7	7.3	6.6
DBRC 17	1683 (66¼)	2	6420 (13600)	204 (450)	2	950	1075	4.0	3.7	7.3	6.6
DBRC 20	1683 (66¼)	2	6420 (13600)	265 (583)	2	950	1075	4.0	3.7	7.3	6.6
DBRC 26	2500 (98¼)	3	9630 (20400)	288 (634)	3	950	1075	6.0	5.5	10.9	9.9
DBRC 30	2500 (98¼)	3	9630 (20400)	320 (700)	3	950	1075	6.0	5.5	10.9	9.9
DBRC 34	2500 (98¼)	3	9630 (20400)	355 (780)	3	950	1075	6.0	5.5	10.9	9.9
DBRC 40	3308 (130¼)	4	12838 (27200)	380 (835)	4	950	1075	8.0	7.3	14.6	13.2
DBRC 44	3308 (130¼)	4	12838 (27200)	410 (900)	4	950	1075	8.0	7.3	14.6	13.2

NOTE: 1.) ALL DIMENSIONS ARE IN MM (INCHES).
2.) * = 889(35"), ** = 972(38.25") FOR DBRC-04
3.) MOTOR FLA FOR DBRC04 IS 1 PHASE 1.3A (220V) / 1.2A (240V) / 1.4A (208V) / 1.2A (230V).

DRY-AIR COOLERS

TECHNICAL DATA



MODEL	PHYSICAL DATA				ELECTRICAL DATA						
	LENGTH 'L'	FANS		APPROX.	MTR	RPM		MTR FLA (3-PHASE)			
	MM (INS)	QTY	TOTAL L/S (CFM)	WEIGHT KG(LBS)	QTY	50Hz	60Hz	380V (50Hz)	415V (50Hz)	208V (60Hz)	230V (60Hz)
DBFC 05	870 (34¼)	1	3210 (6800)	100 (220)	1	950	1075	2.0	1.8	3.6	3.3
DBFC 06	870 (34¼)	1	3210 (6800)	111 (244)	1	950	1075	2.0	1.8	3.6	3.3
DBFC 09	870 (34¼)	1	3210 (6800)	122 (268)	1	950	1075	2.0	1.8	3.6	3.3
DBFC 11	1683 (66¼)	2	6420 (13600)	180 (400)	2	950	1075	4.0	3.7	7.3	6.6
DBFC 15	1683 (66¼)	2	6420 (13600)	190 (420)	2	950	1075	4.0	3.7	7.3	6.6
DBFC 17	1683 (66¼)	2	6420 (13600)	204 (450)	2	950	1075	4.0	3.7	7.3	6.6
DBFC 21	2500 (98¼)	3	9630 (20400)	265 (583)	3	950	1075	6.0	5.5	10.9	9.9
DBFC 24	2500 (98¼)	3	9630 (20400)	288 (634)	3	950	1075	6.0	5.5	10.9	9.9
DBFC 28	2500 (98¼)	3	9630 (20400)	320 (700)	3	950	1075	6.0	5.5	10.9	9.9
DBFC 30	3308 (130¼)	4	12838 (27200)	355 (780)	4	950	1075	8.0	7.3	14.6	13.2
DBFC 37	3308 (130¼)	4	12838 (27200)	380 (835)	4	950	1075	8.0	7.3	14.6	13.2
DBFC 40	3308 (130¼)	4	12838 (27200)	410 (900)	4	950	1075	8.0	7.3	14.6	13.2

NOTE: ALL DIMENSIONS ARE IN MM (INCHES).

REMOTE HEAT EXCHANGERS

CONDENSER/DRY-AIR COOLER DATA

CONDENSERS

MODEL	HEAT REJECTION		THR @ 35°C(95°F) AMB 52°C(125°F) COND		CONNECTION SIZE (INCH)	
	KW/°C	MBH/°F	KW	MBH	HOT GAS	LIQUID
DBRC 04	0.64	2.2	19.1	65.2	1 1/8	7/8
DBRC 06	0.91	3.1	27.5	93.9	1 1/8	7/8
DBRC 08	1.23	4.2	36.5	124.6	1 1/8	7/8
DBRC 10	1.44	4.9	42.7	145.8	1 1/8	7/8
DBRC 11	1.67	5.4	47.5	162.1	1 1/8	7/8
DBRC 13	2.31	6.1	53.8	183.4	1 1/8	7/8
DBRC 17	2.72	8.2	72.3	246.7	1 1/8	7/8
DBRC 20	3.28	9.8	86.0	293.5	1 1/8	7/8
DBRC 26	3.75	12.4	109.4	373.3	1 1/8	7/8
DBRC 30	4.19	14.5	127.7	435.6	1 3/8	7/8
DBRC 34	4.54	16.3	143.4	489.4	1 3/8	7/8
DBRC 40	5.36	19.5	171.2	584.1	1 5/8	1 1/8
DBRC 44	5.86	21.6	190.1	648.7	1 5/8	1 1/8

DRY-AIR COOLER (BASED ON 40% GLYCOL-SEE TABLE 1 FOR CORRECTION FACTORS)

MODEL	NOMINAL		PRESSURE DROP		THR @ 35°C (95°F) AMB 52°C (125°F) COND		NO. OF CIRCUIT	CONN. SIZE (INCH) (1 EA PER UNIT)	INTERNAL VOLUME	
	L/S	GPM	KPa	PSI	KW	MBH		INLET/OUTLET	LT	GAL
DBFC 05	0.38	6	18.6	2.7	11.9	40.6	4	1 3/8	8.3	2.2
DBFC 06	0.57	9	8.3	1.2	16.0	54.5	8	1 5/8	12.2	3.2
DBFC 09	0.95	15	19.3	2.8	24.9	84.9	10	1 5/8	18.4	4.8
DBFC 11	1.3	21	24.1	3.5	30.9	105.6	10	2 1/8	16.8	4.4
DBFC 15	1.6	25	29.0	4.2	40.7	139	12	2 1/8	22.5	5.9
DBFC 17	1.7	27	20.0	2.9	45.0	153.7	16	2 1/8	28.3	7.5
DBFC 21	1.9	30	25.5	3.7	55.8	190.6	16	2 1/8	30.6	8.1
DBFC 24	2.2	35	21.4	3.1	64.5	220.2	21	2 1/8	39.1	10.3
DBFC 28	2.5	40	18.6	2.8	71.7	244.8	26	2 1/8	47.6	12.6
DBFC 30	3.5	56	34.5	5.0	85.2	290.8	24	2 1/8	38.7	10.2
DBFC 37	3.9	62	26.2	3.8	95.3	325.3	32	2 1/8	50.0	13.2
DBFC 40	4.4	70	20.7	3.0	103.4	353.0	40	2 5/8	63.8	16.9

GLYCOL CORRECTION FACTORS

PERCENT GLYCOL	CAPACITY	PRESSURE DROP	FREEZE POINT	
0	1.07	0.88	0°C	32°F
10	1.05	0.91	-3.8	25
20	1.04	0.94	-9.4	15
30	1.02	0.97	-32.2	4
40	1.00	1.00	-23.3	-10
50	0.98	1.03	-35.6	-32

CONDENSER SELECTIONS

MODEL	THR		35°C(95°F)	37.8°C(100°F)	40.5°C(105°F)
	KW	MBH	CONDENSER	CONDENSER	CONDENSER
DBTA 02	11.7	40	DBRC 04	DBRC 04	DBRC 04
DBTA 03	14.7	50	DBRC 04	DBRC 04	DBRC 06
DBTA 04	17.6	60	DBRC 06	DBRC 06	DBRC 06
DBTA 05	21.4	73	DBRC 06	DBRC 06	DBRC 08
DBTA 07	29.3	100	DBRC 08	DBRC 10	DBRC 11
DBTA 09	43.7	149	DBRC 10	DBRC 13	DBRC 17
DBTA 11	50.7	173	DBRC 13	DBRC 17	DBRC 20
DBTA 13	57.2	202	DBRC 17	DBRC 17	DBRC 26
DBA 09	42.8	146	DBRC 10	DBRC 13	DBRC 17
DBA 11	53.1	181	DBRC 13	DBRC 17	DBRC 20
DBA 13	60.4	206	DBRC 17	DBRC 17	DBRC 26
DBA 14	67.4	230	DBRC 17	DBRC 20	DBRC 26
DBA 16	78.3	267	DBRC 20	DBRC 26	DBRC 26
DBA 19	87.1	297	DBRC 20	DBRC 26	DBRC 34
DBA 22	101.4	346	DBRC 26	DBRC 30	DBRC 34
DBA 26	118.1	403	DBRC 30	DBRC 34	DBRC 44

NOTE : SELECTIONS ARE BASED ON STANDARD AIR FLOWS, 125 DEGREE CONDENSING TEMPERATURE, RETURN AIR TEMPERATURE 75/62.5 OR LESS.

REMOTE HEAT EXCHANGERS

DRY-AIR COOLER SELECTIONS

MODEL	THR		FLOW RATE		35°C(95°F)			37.8°(100°F)		
	KW	MBH	L/S	GPM	COOLER	PD,KPa	PD, PSI	COOLER	PD,KPa	PD, PSI
DBTG 02	11.7	40	0.38	6	DBFC 5	18.6	2.7	DBFC 9	3.4	0.5
DBTG 03	14.7	50	0.57	9	DBFC 6	8.3	1.2	DBFC 9	7.6	1.1
DBTG 04	17.6	60	0.76	12	DBFC 9	13.1	1.9	*DBFC 9	19.3	2.8
DBTG 05	21.4	73	0.95	15	DBFC 9	19.3	2.8	DBFC 15	11.0	1.6
DBTG 07	29.3	100	130	21	DBFC 11	24.1	3.5	DBFC 17	20.0	2.9
DBTG 09	43.7	149	170	27	DBFC 17	20.0	2.9	DBFC 24	21.4	3.1
DBTG 11	50.7	173	190	30	DBFC 21	25.5	3.7	DBFC 28	18.6	2.8
DBTG 13	59.2	202	2.20	35	DBFC 24	21.4	3.1	DBFC 30	34.5	5.0
DBG 09	42.8	146	1.70	27	DBFC 17	20.0	2.9	DBFC 21	20.7	3.0
DBG 11	53.1	181	1.90	30	DBFC 21	25.5	3.7	DBFC 28	11.0	1.6
DBG 13	60.4	206	2.20	35	DBFC 24	21.4	3.1	DBFC 30	34.5	5.0
DBG 14	67.4	230	2.50	40	DBFC 28	18.6	2.8	DBFC 37	26.2	3.8
DBG 16	78.3	267	3.50	56	DBFC 30	24.5	3.5	(2) DBFC 21	22.1	3.2
DBG 19	87.1	297	3.90	62	DBFC 37	26.2	3.8	(2) DBFC 24	21.4	3.1
DBG 22	101.4	346	4.40	70	DBRC 40	20.7	3.0	(2) DBFC 28	22.8	3.3
DBG 26	118.1	403	5.00	80	(2)DBFC 24	21.4	3.1	(2)DAFC 30	22.8	3.3

ALL SELECTIONS ARE BASED ON THE FOLLOWING CONDITIONS :
RETURN AIR TEMPERATURE 75/62.5 OR LESS, STANDARD WATER FLOWS, STANDARD AIR FLOWS, 40 PERCENT GLYCOL, 125 DEGREE CONDENSING TEMPERATURE, 115 DEGREE AVERAGE FLUID TEMPERATURE. EXAMPLE :
SELECT DRY-AIR COOLER FOR DBGD 11 AT 95 DEGREE AMBIENT FROM CHART, USE DBFC 21
DBGD 11 (THR) TOTAL HEAT REJECTION IS = 173 MBH
DBFC 21 (CAP) CAPACITY IS = 191 MBH
DBAFC 21 (PD) PRESSURE DROP IS = 3.7 PSI AT 30 (GPM) GALLONS PER MIN.

OPTIONS AND ACCESSORIES

Hermetic Compressors
Includes: Crankcase heaters, suction accumulators.

Hot Gas Bypass
Prevents compressor short-cycling in low room load application.

Hot Water Or Steam Reheat
These economical reheats are controlled by two way valve. Completely piped, wired and tested, at the factory.

Smoke Detector
For systems shut down when smoke is detected with manual reset.

Upflow Plenum
Complete with attractive grilles for room discharge of conditioned air.

Adjustable Leveling Jackstands
Allows raising or lowering of units with fully adjustable rods. Locknuts assures rigidity.

Copper Fin Coils
For use in high humidity corrosive atmospheres.

High Filter Efficiency Filters
65% (based on ASHRAE 52-76) efficiency. 25mm (2 inch) pre-filters available to reduce main filter changes.

Condensate Pump
Complete with pump motor, pump, check valve and automatic control. Available units mounted and wired or externally mounted and powered by either 220V/50Hz or 208-230V/60Hz.

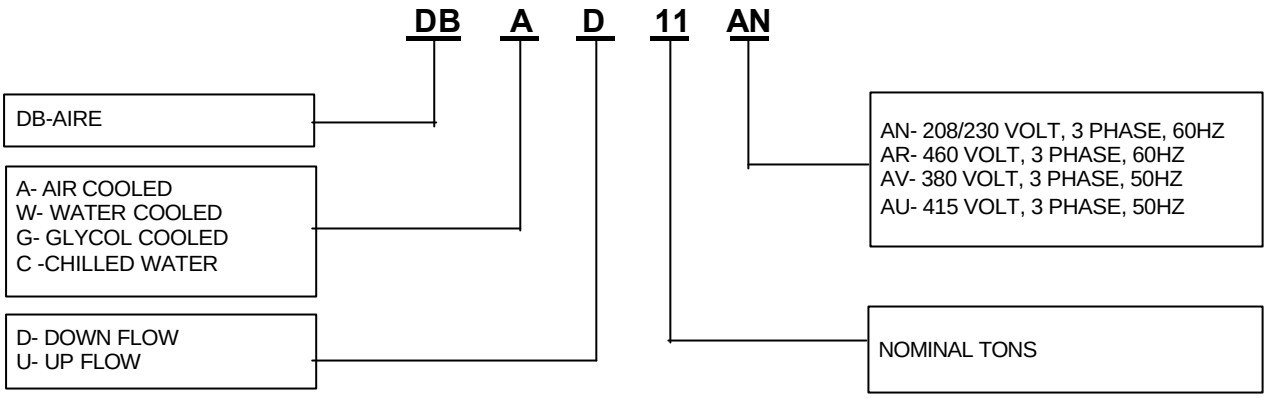
Remote Panel Mount
Remote mount of DB Processor available with 3.0m or 15.0m cable.

Under Floor Water Detection
Give an alarm signal when it detects water under floor.

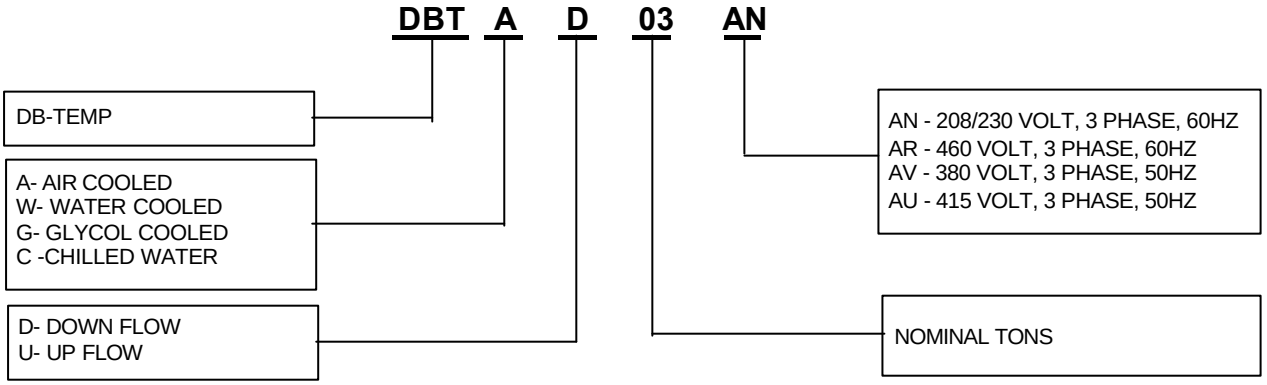
Variable Pitch Palley
Provides adjustable airflow capacity to match load requirements.

SAMPLE NOMENCLATURE

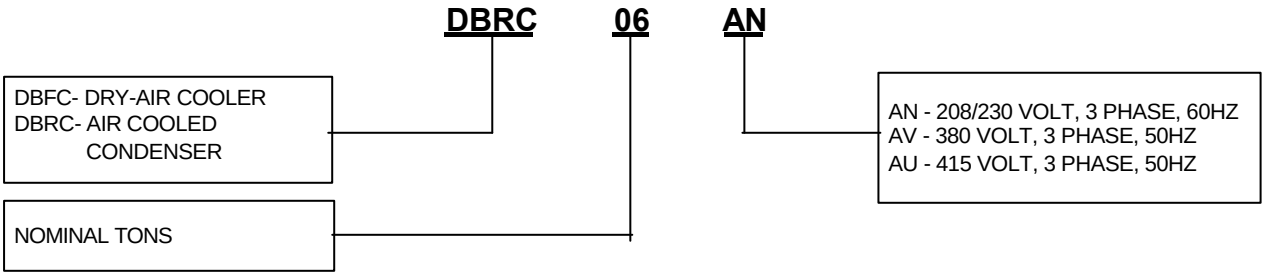
DB-AIRE SERIES
UP AND DOWN FLOW UNITS



DB-TEMP SERIES
UP AND DOWN FLOW UNITS


DBT A D 03 AN
DB-TEMP
A- AIR COOLED
W- WATER COOLED
G- GLYCOL COOLED
C -CHILLED WATER
D- DOWN FLOW
U- UP FLOW
AN - 208/230 VOLT, 3 PHASE, 60HZ
AR - 460 VOLT, 3 PHASE, 60HZ
AV - 380 VOLT, 3 PHASE, 50HZ
AU - 415 VOLT, 3 PHASE, 50HZ
NOMINAL TONS

AIR COOLED CONDENSER AND DRY FLUID COOLER


DBRC 06 AN
DBFC- DRY-AIR COOLER
DBRC- AIR COOLED
CONDENSER
NOMINAL TONS
AN - 208/230 VOLT, 3 PHASE, 60HZ
AV - 380 VOLT, 3 PHASE, 50HZ
AU - 415 VOLT, 3 PHASE, 50HZ

MANUFACTURER RESERVES THE RIGHT TO CHANGE SPECIFICATION OR DESIGN AT ANY TIME WITHOUT PRIOR NOTICE.

DB-AIRE